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February 2017

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Safety in numbers

Last month I wrote that there has never been a greater need for us, as environment and sustainability professionals, to stand up for what we believe. I said this because, with all the political upheaval we are experiencing daily, I feel it is of utmost importance for us to stick together and make our voice heard.

A number of people took the time to get in touch with me after reading my thoughts on this topic, saying that they found it reassuring at a time of great uncertainty. I am delighted that my words struck a chord. But what is more important than my own satisfaction is the united front this small action represents. It got me thinking about why a few words about sticking together chimed with so many members.

We all know collaboration is key; it is a major part of our professional lives and, without it, we would not be able to do our day-to-day work. When environment and sustainability practitioners work collaboratively on a larger scale to tackle the big issues, we become more powerful.

Perhaps there is an emotional reassurance in sticking together in turbulent times like these. Standing united with people who think, work, believe and understand the world the way our profession does feels more than good – it feels right. It is in at least four tiers of Maslow's hierarchy of needs, from the feeling of safety and security right up to self-actualisation.

As a profession, we have some enormous, almost overwhelming, issues to fight for but we will be heard only if we all speak up together with one voice

It is the knowledge that you are standing up, with others, for something meaningful.

I write this on the day it was understood President Donald Trump was intending to pull the US out of the Paris climate agreement. If this has happened by the time you read this, the thoughts expressed in this column must turn into action very soon.

Simply, I want to say environment and sustainability professionals have some enormous, almost overwhelming, issues to fight for but we will be heard only if we all speak up together with one voice. So I hope I can count on you to work with IEMA in the year ahead, to contribute to events, policy consultations, polls, articles and projects that turn humble words into something relevant and significant.

It is more than our role; it is our duty.

Tim Balcon, CEO of IEMA

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Advertising, subscription and back-copy enquiries to
Customer services,
tel: +44 (0) 845 370 1234
The 2017 annual rate is £142.

Printing
Headley Brothers Ltd, Ashford, Kent

Published by
LexisNexis, Quadrant House,
The Quadrant,
Sutton, Surrey
SM2 5AS.
lexisnexis.co.uk

© IEMA 2017

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ISSN 14727625

the environmentalist is printed by ISO 14001 certified printers on 50% recycled paper stock and despatched in biodegradable polywrap

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Brexit plans: still no clarity on 'zombie' environmental law

The government is still considering how to deal with EU environmental legislation that cannot be copied and pasted into UK law through the Great Repeal Bill.

During a debate last month in the House of Lords, Baroness Young of Old Scone asked how the government was planning to deal with the 25–30% of EU environment regulation that cannot be transferred directly. The government admitted previously that the laws affected were mainly those governing chemicals, pesticides and greenhouse-gas emissions.

Young said: 'This legislation and these standards will have to be reset for the benefit of British business and the environment by a process of secondary legislation. Will the minister tell us how we are going to cope with that and how we can reassure British businesses that they are not going to be left without clarity about the important environmental standards that are vital for their businesses?'

Parliamentary Under Secretary of State for Exiting the EU Lord Bridges of Headley replied: 'I am not going to go into great detail today about how that process will work, but we are looking at how both houses will be able to cope with the task ahead to ensure that we deliver as much certainty as possible while ensuring that such secondary legislation gets the scrutiny and debate it deserves.'

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MPs on the Environmental Audit Committee has called for a new environmental protection act to prevent what it called 'zombie' legislation being eroded through statutory instruments with minimal parliamentary scrutiny after Brexit.

Meanwhile, prime minister Theresa May promised that parliament would be given a say in any alterations to environmental laws transferred into UK law through the Great Repeal Bill, adding that it would be up to MPs and peers to decide once the changes had been fully scrutinised and debated.

Environment regulators eye reforms

The Environment Agency is being urged to increase self-assurance and recover more of the costs of regulation from industry.

The recommendation is contained in the findings of a wide-ranging government review of regulatory practice in England that was mounted after regulators said efficiency could be improved if agencies worked together more.

The review, which was led by regulators themselves, proposes a shift towards what it calls 'regulated self-assurance'. The Environment Agency (EA) already practises this, with inspections under its pig and poultry assurance scheme delegated to assurers of the Red Tractor food standards. The scheme certifies farms that meet standards covering animal welfare, food safety, traceability and environmental protection.

Where similar schemes are possible, the review said the government should fully implement its policy of funding regulators through charges on those they regulate, rather than from public finances, which currently meet only around half the running costs. The review notes, however, that this approach would require effective enforcement against firms that opt out of self-assurance. It is up to the regulators and their sponsoring government department to develop new models, the review states.

It acknowledges changes are unlikely to be a priority at present because regulators, such as the EA, are focused on Brexit.

Meanwhile, the Scottish Environment Protection Agency (Sepa) and the Scottish government are consulting on integrating authorisation and enforcement schemes covering water, waste, radioactive substances and pollution prevention and control. Four tiers of authorisation are proposed. A single site would need just one permit to cover several activities, but it would be set at the highest tier.

Shortcuts

Hazard substances list

Four chemicals have been added to the candidate list of substances of very high concern (SVHCs) for authorisation, bringing the total to 173. They are: 4,4'-isopropylidenediphenol; nonadecafluorodecanoic acid and its sodium and ammonium salts; p-(1,1-dimethylpropyl)phenol; and 4-heptylphenol, branched and linear. The list consists of substances that may have serious effects on human health or the environment, and may eventually be placed on the authorisation list. Companies using a substance that is authorised must apply for permission to continue using it after the 'sunset' date. There may also be legal obligations on companies using a substance on the candidate list. Suppliers of products containing a listed substance above a concentration of 0.1% must inform customers down the supply chain and consumers, for example.

Church mulls fracking

The Church of England has said that any development of shale gas reserves in the UK must not distract or delay efforts to expand low-carbon renewable energy or other efforts to meet the nation's long-term 2050 carbon reduction targets. In a briefing paper on shale gas and fracking, the church said the key to whether hydraulic fracturing of unconventional gas reserves is an acceptable practice turns on three points: the place of shale gas within a transitional energy policy committed to a low-carbon economy; the adequacy and robustness of the regulatory regime under which it is conducted; and the robustness of local planning and decision-making processes. The study accepts that a robust planning and regulatory regime is possible, but says more research and continued monitoring of any impact on health and the environment must be central to the governance of the industry. It urges protections and compensation to be put in place for local communities affected by shale developments. The role of environmental practitioners in the shale industry is examined on pp15–18.

Businessplans

P&G has announced further investment in recycling and reuse of materials to eliminate all manufacturing waste from more than 100 production sites worldwide by 2020. Since 2010, 56% of the company's global production facilities have qualified as zero manufacturing waste-to-landfill sites. It now plans to eliminate or reuse about 650,000 tonnes of waste so the remaining facilities send no waste to landfill. The firm said it would achieve its zero-waste goal by ensuring all incoming materials are: converted into finished products; or recycled internally or externally; or reused in different ways through partnerships.

Logistics business **Deutsche Post DHL Group** has announced that its climate protection project in Lesotho is the first to meet the **Fairtrade Climate Standard**. The company said the scheme, which supports the use of efficient wood-burning stoves in villages to reduce harmful smoke, has helped it offset logistics-related greenhouse-gas (GHG) emissions for its customers as part of its climate-neutral services. Fairtrade Climate Standard certification monitors the reduction in GHG emissions and the societal value of the project.

Gatwick is the first UK airport to join the global renewable electricity alliance. The airport, in West Sussex, was unveiled as one of three new RE100 members during the World Economic Forum in Davos and expects to be carbon neutral by the spring. Gatwick has purchased 100% renewable electricity since 2013. Electricity comprises 80% of the airport's operational carbon footprint, and Gatwick said the remaining emissions would be offset through investments in international, national and local renewable energy programmes as well as from continued spend on energy and fuel efficiency.

Kodak Alaris has achieved 11% savings on annual energy costs at its UK manufacturing site at Hemel Hempstead by using cloud-based energy-management software. **DONG Energy**'s site optimisation product analyses half-hourly signals from the energy market and calculates the most cost-efficient operating schedules for a specific site.

Global trade hinders action on climate change

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Globalisation has failed to mitigate climate change, according to a survey of chief executives by consultancy PwC.

Almost three-quarters (72%) of the 1,378 CEOs polled as part of PwC's 20th annual survey said increased global trade and connectivity had not helped to avert climate change and resource scarcity. A majority also said globalisation had failed to promote the development of fairer tax systems (65%) and close the gap between rich and poor (56%).

This year's results are the first to question globalisation as a positive development, and PwC said a paradigm shift in the role of business was required to produce the 'better, more harmonious, less divided planet'. It added: 'In the headlong rush to reap the benefits of technology and globalisation, the human factor has been lost. It's time for CEOs to step forward and help safeguard the future by ensuring the benefits of business go to everyone.'

Business leaders are also concerned about skills, with the proportion of CEOs anxious about workers' abilities more than doubling since 1998, from 31% to 77%. Creativity and innovation, leadership and emotional intelligence are the skills companies are finding it difficult to recruit. Digital and STEM skills are a recruitment issue for more than half of business leaders. PwC said companies were addressing future skills needs through diversity and inclusiveness programmes and by improving workforce mobility.

The poll found CEOs increasingly fear that public trust in business is eroding. Twenty years ago, trust barely registered on the business radar of CEOs and 15 years ago just 12% of business leaders thought public trust in companies had greatly declined. This year, 58% of respondents worry that a lack of trust in business will harm their company's growth, up from 37% in 2013.

Firms back plan to recycle plastics

Business leaders have endorsed a plan to recycle 70% of plastic packaging worldwide, up from 14% now.

More than 40 firms, including The Coca-Cola Company, Danone, Mars and Unilever, have backed a plan to tackle global plastics waste set out in a joint report from the World Economic Forum and the Ellen MacArthur Foundation.

New Plastics Economy: catalysing action includes a strategy for the global plastics industry to design better packaging, increase recycling rates and introduce new models for making better use of packaging.

The report found that 20% of plastic packaging could be profitably reused, for example by replacing single-use plastic bags with reusable ones, or by designing innovative packaging based on product refills. A further 50% could be profitably recycled if improvements were made to packaging design and systems for managing it after use. The remaining 30% would never be recycled, however, and would continue to go to landfill or incineration without fundamental redesign and innovation.

Adrian Griffiths, chief executive at Recycling Technologies, which is also backing the initiative, said: 'The issue of waste plastic is clearly a growing concern within the industry and the wider public. This report outlines a clear strategy for the industry to provide better recycling rates by turning waste plastic into a resource that can be reused.'

Paul Polman, chief executive at Unilever, welcomed the report for setting out specific actions to capture opportunities for redesign and innovation, reuse and recycling. 'We urgently need to transform global plastic packaging material flows if we are to continue to reap the benefits of this versatile material,' he said.

Scots to reduce emissions by 66%

Scotland wants to reduce its greenhouse-gas emissions by 66% by 2032 against 1990 levels and deliver half of the energy required for heating, transport and electricity from renewable sources by 2030.

The Holyrood government said, having already exceeded its 2020 climate change target by achieving a 42% cut in GHG emissions, its draft climate change plan demonstrated 'a new level of ambition' to build a prosperous, low-carbon economy.

Cabinet secretary for environment, climate change and land reform Roseanna Cunningham said the commitment to further deep cuts in emissions would help to maintain Scotland's reputation as a climate leader and she urged businesses and communities to support this. 'The Scottish government's ambitions are clear, but we have now reached a point in our journey where future progress will require the support of individuals, organisations and businesses across the country.'

The draft plan for 2032 entails fully decarbonising the electricity sector in Scotland, producing 80% of domestic heat from low-carbon technologies and increasing the proportion of ultra-low emission new cars and vans registered in Scotland by at least 40% a year.

The administration also wants to restore 2,500 sq km of degraded peatlands and create new woodland of at least 150 sq km each year.

The government has also unveiled a target to deliver half of the energy required for Scotland's heat, transport and electricity needs from renewable sources by 2030 as part of a consultation on the nation's first energy strategy.

The government said the draft climate change plan and energy strategy together provided the strategic framework for Scotland to transition to a low-carbon future. 'Achieving our vision is also crucial to efforts to tackle fuel poverty and to prevent the damaging effects of climate change as part of the global community's fight to limit global temperature increases to 2°C or less,' said business, innovation and energy minister Paul Wheelhouse.

Business and environmental groups welcomed the proposals. Trade body Solar Trade Association Scotland said the publication of the two plans showed a strong commitment from the government to tackling climate change and decarbonising Scotland's energy market.

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Nick Molho, executive director of sustainability alliance the Aldersgate Group, described the measures as bold and said: 'The proposal for 50% of all energy to be generated from renewables by 2030 will set an important long-term signal that businesses can respond to with affordable investment and innovation.'

Meanwhile, the UK government has published its second risk assessment, highlighting the challenges facing the UK economy, environment and public health from climate change. It endorses the six priority risk areas identified in the July 2016 report from the adaptation sub-committee of the independent Committee on Climate Change. These are: flooding and coastal change; effects of high temperatures on health and wellbeing; water shortages; harm to natural capital; damage to food production and trade; and the problems posed by pests and diseases and invasive non-native species.

The assessment notes that average temperatures in the UK have risen by around 1°C over the past 100 years, and there is trend towards milder winters and warmer summers, while rainfall patterns have changed and sea levels have increased by around 3 mm a year. 'The latest assessment will help us develop our long-term programme to tackle these risks so we can continue our work to protect the nation better today and for future generations,' said Defra minister Lord Gardiner.

The government said it would publish the National Adaptation Programme in 2018 and that the environment department had commissioned the Met Office Hadley Centre to produce an updated set of UK climate projections (UKCP18) next year.

Short cuts

2016 was a hot one

The Earth's surface temperatures in 2016 were the warmest since records began, according to NASA and the National Oceanic and Atmospheric Administration in the US and the Met Office in the UK. Scientists at NASA's Goddard Institute for Space Studies said globally averaged surface temperatures last year were 0.99°C warmer than the mid-20th century mean, making 2016 the third year running to set a new record. The Met Office said 2016 and 2015 were the two warmest years in its annual series of figures that go back to 1850. NASA said the planet's average surface temperature had risen about 1.1°C since the late 19th century, a change driven largely by increased carbon dioxide and other human-made emissions into the atmosphere. It confirmed that most of the warming had occurred in the past 35 years, with 16 of the 17 warmest years on record occurring since 2001.

Climate warning

Europe's regions are facing rising sea levels and more extreme weather, such as more frequent and more intense heatwaves, flooding, droughts and storms due to climate change, according to a report from the European Environment Agency. Its assessment found that precipitation patterns were changing, generally making wet regions in Europe wetter and dry regions drier. Glacier volume and snow cover were decreasing. At the same time, the frequency and intensity of heatwaves, heavy precipitation and droughts were increasing in many regions. Improved climate projections provide further evidence that climate-related extremes would increase in many European regions, the agency concluded. 'Climate change will continue for many decades to come,' said the agency's executive director Hans Bruyninckx. 'The scale of future climate change and its impacts will depend on the effectiveness of implementing our global agreements to cut greenhouse gas emissions, but also ensuring that we have the right adaptation strategies and policies in place to reduce the risks from current and projected climate extremes.'

Leading firms help suppliers to cut carbon

Companies supplying corporations reporting to the CDP reduced emissions equivalent to 463 million tonnes of carbon dioxide in 2016.

The latest annual supply chain report from the CDP notes that the cut was more than France's total greenhouse-gas (GHG) emissions in 2014 and that it reflected demands by some of the world's largest purchasing organisations, including BMW, Microsoft and Walmart, for suppliers to do more to combat climate change.

'Companies have a critical role to play in delivering on the Paris agreement and, as well as setting their own house in order, it is essential they turn their attention to the risks and opportunities outsourced to their supply chain,' said Dexter Galvin, head of supply chain at the CDP. 'By harnessing their purchasing power, big buyers have the potential to deliver the large-scale, rapid change that is needed and lead the way towards our sustainable future.'

The report reveals that US company Hewlett-Packard has helped its suppliers avoid 800,000 tonnes of CO_2e emissions and save more than $65m through energy-saving action plans targeting local efficiency improvements.

Despite the reported reduction in emissions and examples of action, the CDP found that almost half (47%) of suppliers were failing to respond to customers' requests for climate and water-related disclosure. It also found that, although there had been a 20% increase since 2015 in the number of big buyers requesting climate and water-related data from their suppliers, many large businesses were still failing to engage supply chains. Just 22% of responding companies were engaging with their own suppliers on carbon emissions and 16% on water use.

Tom Delay, chief executive of the Carbon Trust, which helped to compile the report, said failure by large firms to engage suppliers was a lost opportunity: 'Supply chain is the next frontier in sustainability. Managing

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the environmental impact of your own operations is expected behaviour. But the greatest opportunities for reductions are typically outside direct operational control, in the supply chain.'

The CDP said common barriers to engaging suppliers effectively included: companies' lack of experience in calculating and managing their own emissions; a perceived lack of leverage over business partners; the costs associated with managing an engagement programme; and an absence of mandatory requirements from customers or regulation.

From environmentalistonline.com…

Resource policy

Standards on resource efficiency should match or be better than those implemented by the EU circular economy package to ensure businesses and consumers are not disadvantaged, the Aldersgate Group says. Its report showcasing resource efficiency pilot projects notes that much of the UK's policy on the issue has stemmed from EU legislation and says British businesses wanting to continue exporting goods and services to the bloc would need to adhere to its revised ecodesign standards, now being developed. Becoming more resource-efficient would boost employment and competitiveness in the UK, while cutting resource dependence, waste and CO_2 emissions, the report says. The 26 pilot projects highlighted in the report saved the companies involved £4.89m, and reduced materials consumption and greenhouse-gas emissions by 62,619 tonnes and 1,953 tonnes respectively.
bit.ly/2j5diZq

CCS let-down

Failure to agree the total cost of government support for a competition to build the UK's first carbon capture and storage (CCS) plant was a key reason behind the Treasury's sudden withdrawal of funding, a review concludes. The National Audit Office scrutinised the way the government ran the competition, which was the second attempt to kick-start a CCS industry in the UK after the first failed in 2011. In its findings, the public spending watchdog notes that it was clear from the outset that £1bn of capital would be needed to support construction of a CCS plant but there was uncertainty in the business department about how much it would cost consumers, with forecasts ranging from £2bn to £6bn. It says this failure to agree the total cost of the projects with the Treasury resulted in the business department being unable to tailor its approach to the competition within a known budget.
bit.ly/2j1HXuf

Natural capital

The government needs to do more to encourage businesses to value and report on natural assets such as flood plains, and soil and water quality, the Natural Capital Committee is recommending. In its fourth annual report to government, the advisory body outlines that the loss of natural capital is imposing significant costs on the UK economy and businesses. These tend not to be sufficiently recognised and are excluded from economic indicators of progress, such as GDP. However, the report says the costs were increasingly apparent, with more flooding, further decline in soil quality and pollinator numbers, more air pollution and an accelerating loss of outdoor recreation areas. It advises the government to promote corporate natural capital valuation, accounting and reporting to ensure natural assets are properly managed. Public sector bodies should also value natural capital assets and use valuations to guide investments in improving them.
bit.ly/2jZ70ir

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IEMAFutures

Brexit offers opportunity to improve land management

With farming taking place on more than three-quarters of UK land, what happens to our agricultural policy post-CAP will have significant implications for people, the environment and the economy.

The opportunity to reform the UK's agricultural and land use policy post-Brexit is a once-in-a-generation opportunity to make sure it provides the biggest public and environmental benefits. But we need to be bold and think big.

Urban farming is on the rise, and with good reason. Not only does it present an innovative solution to feeding the world's seven billion mouths and counting, it also has significant environmental, health and social benefits. These include saving water; reducing air pollution and carbon emissions by minimising food's journey from soil to fork; providing urban homes for wildlife and encouraging pollinators; attracting tourists; providing jobs and green spaces for leisure and relaxation; and improving wellbeing by reconnecting people with nature and where food comes from.

If we are to build a sustainable future, we need policy that will support such a transformation. Could agri-environment schemes in post-Brexit policy include support for urban farmers to transform their rooftops into thriving organic vegetable patches? Could we extend responsibility for sustainable land management to city dwellers?

This year, the IEMA Futures team is talking to young people throughout the UK about their visions for sustainable cities, and early conversations indicate they are prepared to be imaginative.

For this generation, urban farming is not thinking big enough – the possibilities for sustainable farming are bound to become more creative. But will policy support our ambitions?

To join the conversation, connect via the team's LinkedIn group or find us on Twitter @IEMAFutures.

ISO appoints Martin Baxter to head sub-committee on environment management

The reputation of IEMA as a leading contributor to the development of environment and sustainability policy has grown further after chief policy advisor Martin Baxter was appointed to head an international committee on developing standards.

Baxter was confirmed last month as chair-elect of the sub-committee responsible for environmental management systems standards at the International Organization for Standardization (ISO). He will replace Dr Anne-Marie Warris, also a Full member of IEMA, who is standing down from the role at the end of the year.

'It is a tremendous honour to have been appointed to this role,' said Baxter. 'ISO's environmental management systems standards support organisations in all parts of the world to improve performance and enhance resilience. I look forward to working with colleagues from around the world to enhance the contribution that standards make to tackling long-term environment and sustainability challenges.'

Scott Steedman, director of standards at British standards body BSI, said: 'International standards play an important role in reducing barriers to global trade to the benefit of organisations that adopt them. ISO's suite of environmental management standards provide comprehensive guidance for organisations' to improve their environmental performance, develop good processes and save money. We are delighted to welcome Martin Baxter to this influential position.'

ISO TC207/SC1 is the sub-committee responsible for ISO 14001, the global standard for environment management systems and other supporting standards, including 14004, 14005 and 14006. Standards being developed include 14007 (guidance on determining environmental costs and benefits) and 14008 (monetary valuation of environmental impacts from specific emissions and use of natural resources).

Baxter led the UK's input on the working group that revised 14001, which was published in September 2015.

Data from ISO at the end of last year, revealed that 319,324 organisations in 201 countries were certified as meeting the requirements of ISO 14001, an annual growth of 8%. Many more organisations use the standard as a framework to help them improve their environmental performance.

Volunteers required to road test new standard for Full members

The new Full membership standard is almost ready for launch, and members have an opportunity to help road test the application and assessment method and receive free upgrade support.

From the spring, members will be able to upgrade to Full membership (MIEMA) – the gold standard for environment and sustainability professionals – through a new standard.

The standard was refreshed as part of the institute's member level review, which started in 2013. It offers members from a sustainability background the chance to have their expertise and experience recognised to Full level, and updated to ensure environmental management principles continue to be suitably celebrated and protected.

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IEMA is now perfecting the application and assessment elements of upgrading to MIEMA. To help to finalise the process, Associate and Practitioner members have been offered the opportunity to help test it. Those who sign up to the pilot can take advantage of a support package to help members to achieve their goal. The package includes all the tools, guidance and feedback required to successfully upgrade.

IEMA is offering 25 free upgrade support programme places a month in February, March and April on a first come, first served basis. The programme is usually priced at £50 but is free to members who take part in testing the new MIEMA process.

To find out more and apply to upgrade via the road test, go to iema.net/full-upgrade.

Jobs market with Environment Works

It has been a strong start to 2017. Environment Works (formerly Shirley Parsons Associates) has reported an influx of new vacancies and the need for services – and IEMA members – is expanding throughout our client and candidate bases.

IEMA members throughout the UK will benefit from a discernible shift in the market. First, our clients are beginning to demand that job applicants are IEMA members, and have the right level memberships for different positions. Second, this is beginning to drive up salaries, particularly in London and south east of England. This is a good sign for the rest of the UK – the ripple will spread, and generally what happens in London tends to reach the rest of the country in time.

This market shift is especially pronounced in the manufacturing and infrastructure industries, which are both experiencing growth. It also highlights strong demand for some skills sets. Ecology is experiencing a rise in popularity, as we head towards spring. Demand for several specialist niche skills are cropping up more regularly, principally sustainable sourcing and supply chain management.

These factors, as well as the work of our dedicated team, has resulted in a great start to 2017 at Environment Works and there are no signs of demand slowing. The growth of the market in these areas looks set to continue into the year, and Environment Works aims to help harness this and continue the early successes.

All in all, a strong start to 2017.

Correction – ESP entry in the winter learning supplement

A phone number for an IEMA training partner published in the December 2016 learning supplement was wrong. ESP, provider of IEMA's courses, All jobs greener, Internal EMS auditor and Making the transition to ISO 14001: 2015, can be contacted on +44 (0)1902 771311. Alternatively, visit esp.uk.net to find out more. We offer our apologies to ESP for the error.

Concern over local authority EIA resources

Practitioners fear local planning authorities will struggle to accomplish their new duties under the amended environmental impact assessment (EIA) regulations.

In a webinar hosted by IEMA on the government's plans to transpose the revised EIA Directive in England, 89% of participants were wary of the changes.

IEMA policy lead Josh Fothergill, who chaired the webinar, has also hosted a series of workshops to tie in with the communities department (DCLG) consultation on the proposals, which closed at the end of January. If the amendments go through, planners will have extra responsibilities, including: setting out the reasons behind decisions taken on issues considered in environmental statements (ES); assessing proposals to mitigate impacts on the environment; and judging whether the ES has been written by a 'competent' person.

Some 225 EIA practitioners took part in the webinar and 170 responded to IEMA's poll. Of these 70% believe the proposals would increase the role of local authority planning officers in the EIA process; 64% believe that the local authorities do not have the expertise or the capacity to take on an expanded role; and 25% say they have the expertise, but not the capacity.

The consultation stated that most decision-makers either had staff with enough expertise to examine the environmental statement in their teams or could easily access expertise at bodies such as Natural England and the Environment Agency.

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Tom Wells, director of environmental planning and assessment at commercial property adviser CBRE, said, although some local authorities employ EIA specialists, many use consultants to work on impact assessments. When a consultant is paid to review other consultants' work, they may feel they have to produce enough feedback to justify the fees, he said.

'There's a danger that, if local authorities engage more consultants to review documents on their behalf, it could cause more back and forth between developers and planning authorities to resolve issues that aren't really critical,' Wells warned. As with all new regulations, the fear of legal challenge could drive more local authorities to consider using consultants, he added.

Andrew Whitaker, planning director at the Home Builders' Federation, does not believe a lack of capacity in EIA should be an issue for local authorities. 'If local authorities don't have the resource in house, they'll need to step up to the plate and retrain their staff,' he said.

Fothergill described giving local planning authorities responsibility to judge the competence of a developers' EIA team as an 'undue retrograde burden', and 'goldplating' of the revised EU directive. He said a better approach was being adopted by the Scottish government. It had interpreted the directive differently, and planned to leave it to developers to ensure their impact assessments are delivered by qualified, experienced people.

Impact assessment network update by Rufus Howard

The revised directive (2014/52/EU) requires environmental impact assessments (EIA) to be carried out by 'competent experts'. Regardless of your definition of competent experts, there are some well-established principles across a range of professions on the requirements of being a professional. One of these is the obligation to undertake continuing professional development (CPD). For EIA practitioners, many are required, through their IEMA membership, to submit evidence of annual CPD.

This development can be in the form of reading articles, journals, listening to webinars and other forms of online learning. However, in my experience, the best CPD is participatory – that is, training, events, seminars and conferences. Being an EIA practitioner can be an isolated role, and attending events and conferences may be one of the few occasions to learn about new techniques, case studies and swap stories and experiences with others. It is also good for the soul to get out of the daily routines and mingle with like-minded professionals.

Here are some upcoming CPD events I am attending that practitioners might also find interesting.

- **EnvEXPO** in Norwich between 27 February and 1 March. It is funded by the NERC and the focus is environmental innovation. I shall be giving one of the keynote speeches on 1 March on valuing nature and natural resources (uea.ac.uk/envexpo).
- On 17 March, I have organised a **special symposium** in Canterbury to bring together academics and practitioners to explore and debate EIA (bit.ly/2kwDnlE).
- **IAIA 2017** will be held in Montréal, Canada, on 3–7 April. The annual event is the largest international conference for impact assessment and an excellent opportunity to speak with international EIA practitioners. I shall be speaking on the industry evidence programme (conferences.iaia.org/2017).

So, raid those training budgets, book some events and continue your CPD.

Clean energy and skills underpin strategy

Delivering affordable energy and clean growth is one of ten pillars of the government's proposed industrial strategy, which has been unveiled by business and energy secretary Greg Clark.

A green paper introducing the new industrial strategy states that the UK needs to keep costs down for businesses while securing the economic benefits of the transition to a low-carbon economy. To achieve this twin ambition, the government said it would publish a long-term roadmap this year after a review of the opportunities to reduce the cost of achieving the UK's decarbonisation goals in the power and industrial sectors.

The review will cover how best to support greater energy efficiency, whether existing measures to sustain further cost reductions in offshore wind are viable, and how the government and regulator Ofgem can ensure efficient markets and networks in a low-carbon system.

The government has also promised to publish an emissions reduction plan this year to provide long-term certainty for investors as well as review the case for a new research institution to act as a focal point for work on energy storage and grid and battery technologies.

Nick Molho, executive director of the Aldersgate Group, welcomed the emphasis on ensuring the UK secures the economic benefits of an affordable and timely transition to a low-carbon economy. 'The opportunities arising [this] extend beyond energy innovation into a wide range of highly productive sectors. This part of the economy employed 447,500 people in 2014, with a turnover in excess of £83bn,' he said.

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Another pillar of the proposed strategy is to improve skills. This includes building a new system of technical education; boosting STEM (science, technology, engineering and maths) skills, digital skills and numeracy; and raising skill levels in lagging areas. The government pointed out that the UK ranks 16th out of 20 OECD countries for the proportion of people with technical qualifications and that the country has labour shortages in sectors that depend on STEM subjects.

IEMA welcomed the overhaul of technical education and skills. Chief policy advisor Martin Baxter said the planned approach and expected investment in a stronger technical skills portfolio was positive. Looking further ahead, it presented an opportunity to drive the UK's skills profile and commitment to sustainability outside the EU. 'We welcome the focus on skills and education, as it is vital that tomorrow's workforce has the competence and capability to innovate and compete globally in high-value manufacturing and leading technology. There is a real opportunity to set long-term economic and environmental outcomes that set the conditions to unlock investment, enhance natural capital and provide employment.'

Flogging a live horse – the story of the Green Investment Bank

The Green Investment Bank has been around since 2012 and tasked to invest in green and low-carbon projects.

Although it is not exactly a bank (it cannot lend or borrow), the GIB has made a success of what it was asked to do. So far it has invested more than £2bn at a reasonable rate of return and attracted more than £8bn of private investment. It is making a profit and the returns are projected to increase in future.

All rosy on the green investment front then? Not exactly. Elements of the government decided it needed to be sold – using the curious argument that the GIB would be better able to do its job of dealing with market failures if it was in the hands of investors who were party to those failures in the first place. A prospectus was issued and the GIB was offered up for sale.

We know that a 'preferred bidder' has been chosen and that some 'safeguards' on the articles and memoranda of the bank have been put into place to secure the mission of the bank. Around Christmas, the GIB started creating a raft of subsidiary companies that looked like vehicles into which its investments could be floated. Purchasing the GIB and getting your money back (or more) by flogging off its carefully crafted assets and deflating its activity makes some sense from a prospective purchaser's point of view.

Where are we? There has been debate in parliament about the intentions of the government and the wisdom of the proposed sale, and so far ministers have been playing a straight bat, not revealing very much and saying that discussions are continuing with the preferred bidder. There may be some signs that they are thinking again, with reports emerging that the government may opt for general share flotation, which might be a better solution if a 'golden share' is retained that can guarantee the bank's actual rather than theoretical direction.

However, the best solution is to do nothing. Let the GIB get on with its mission of securing and developing good, low-carbon investment and allow it to roll over its successful investments, when they are up and running, into new programmes. I am hoping BEIS will review what was in essence a Treasury decision under its former management and keep the GIB working in the public realm. But I'm not holding my breath right now.

Alan Whitehead, MP for Southampton Test.

In court

‘Defeat’ devices in vehicles cost VW $4.3bn

German automotive company Volkswagen (VW) has been fined $2.8bn after agreeing to plead guilty to felonies involving the sale of approximately 590,000 diesel vehicles in the US that were fitted with a ‘defeat device’ to cheat federal emissions tests.

In separate civil resolutions of environmental, customs and financial claims, VW has agreed to pay $1.5bn. This includes a claim by the US Environmental Protection Agency (EPA) for civil penalties against the firm for importing and selling the vehicles, as well as US Customs and Border Protection agency claims for fraud.

‘Volkswagen’s attempts to dodge emissions standards and import falsely certified vehicles into the country represent an egregious violation of our nation’s environmental, consumer protection, and financial laws,” said Loretta Lynch, who was then attorney general. ‘In the days ahead, [the justice department] will continue to examine Volkswagen’s attempts to mislead consumers and deceive the government. And we will continue to pursue the individuals responsible for orchestrating this damaging conspiracy.’

VW Group, which includes Audi and Porsche as well as Volkswagen, admitted in September 2015 that it had used a software algorithm known as a ‘defeat device’ to artificially lower nitrous dioxide emissions from diesel vehicles during tests, contravening rules set by the Clean Air Act since 2009 and putting people’s health at risk.

As part of the settlement, VW must remove from the US or perform an approved emissions modification on at least 85% of affected 2.0 and 3.0 litre vehicles by specified deadlines, and abide by a separate 85% recall rate in California. If the firm fails to reach the 85% goal, it must pay additional penalties equal to $85m and $13.5m for each percentage point by which it falls short of the national and California recall targets respectively.

VW has also agreed to compensate some customers for alleged damages. Under the terms of the agreement, the company could spend up to $10.03bn reimbursing consumers in the US.

VW chief executive Matthias Müller said: ‘Volkswagen deeply regrets the behaviour that gave rise to the diesel crisis. We will continue to press forward with changes to our way of thinking and working.’

More car makers face investigation

The US Environmental Protection Agency (EPA) has issued a notice of violation to Fiat Chrysler for installing and failing to disclose engine management software in 104,000 vehicles. Most of them Jeep Grand Cherokee and Dodge Ram 1500 models produced between 2014 and 2016. The agency is claiming this violated the Clean Air Act because the undisclosed software resulted in higher emissions of nitrogen oxides (NOx).

‘Failing to disclose software that affects emissions in a vehicle’s engine is a serious violation of the law, which can result in harmful pollution in the air we breathe,’ said Cynthia Giles, assistant administrator for the EPA’s Office of Enforcement and Compliance Assurance. ‘We continue to investigate the nature and impact of these devices. All automakers must play by the same rules, and we will continue to hold accountable companies that gain an unfair and illegal competitive advantage.’

The move comes after the agency agreed a financial settlement with VW (above) for installing so-called ‘defeat devices’.

Meanwhile, state prosecutors in France are investigating whether Renault cheated exhaust emissions rules. In November, the government passed the findings of an investigation into Renault by the consumer fraud agency, the Direction Générale de la Concurrence, de la Consommation et de la Répression des Fraudes, to the prosecutor’s office.

In statement, Groupe Renault said it complied with all French and European regulations and that its vehicles were not equipped with cheating software.

Case law

Court quashes approval for development in green belt

In *Boot v Elmbridge Borough Council* [2017], the High Court quashed permission for a sports ground in the metropolitan green belt. The claimant had sought to overturn the council’s decision to approve a new football and athletics facility. One of the key grounds of challenge was that the planning committee had erred in its interpretation of para 89 of the National Planning Policy Framework (NPPF). This states: ‘A local planning authority should regard the construction of new buildings as inappropriate in green belt. Exceptions to this are ... the provision of appropriate facilities for outdoor sport, outdoor recreation and for cemeteries, as long as it preserves the openness of the green belt and does not conflict with the purposes of including land within it.’

The claimant argued that the new sports facilities had to ‘preserve the openness of the green belt’. The court upheld the challenge. It said the council’s conclusion that the proposal had a ‘limited adverse impact on openness’ of the green belt was not tantamount to complying with the NPPF, which required openness to be preserved. Accordingly, even if the adverse impact was acceptable for the purposes of the local plan policy, it was not acceptable for the purposes of para 89. The wording of the local plan policy had no bearing on the proper interpretation of the NPPF.

The court said the decision in *West Lancashire Borough Council v SSCLG* [2009] had established that, if a proposal had an adverse impact on openness, the ‘inevitable conclusion’ was that it did not comply with a policy that required openness to be maintained.

Jen Hawkins

Lexis®PSL

New regulations

In force	Subject	Details
28 Nov 2016	Energy	Building (Amendment) Regulations (Northern Ireland) 2016 amend the 2012 regulations to apply 'nearly zero-energy' requirements to all new buildings (by the end of 2020) and new buildings (by the end of 2018) owned and occupied by public authorities. This requirement previously related only to buildings occupied by public authorities. bit.ly/2jflQ0Q
9 Dec 2016	Wildlife	Decision 2016/2335 updates the list of EU protected habitats in the Atlantic Biogeographical Region, which includes the UK and Ireland. bit.ly/2jG1KAu
15 Dec 2016	Energy	The Contracts for Difference (Allocation) (Excluded Sites) Amendment Regulations 2016 change the non-delivery disincentive for the allocation of CFDs. They extend circumstances under which a generator may be barred from applying for a CFD in subsequent allocation rounds. Generators that have failed to deliver will be subject to extended temporary exclusion. The regulations also include an exemption to protect CFDs terminated due to a change in law. bit.ly/2jvUJQ8
19 Dec 2016	Energy	The Energy Act 2016 (Commencement No. 3) Regulations 2016 brings into force further sections of the act. These relate to the requirement by the Oil and Gas Authority for information and samples, and appeals against decisions. bit.ly/2iRuFgu
30 Dec 2016	Climate change	The Climate Change Agreements (Administration) (Amendment and Related Provision) Regulations 2016 amend the 2012 regulations. Companies failing to meet targets under climate change agreements between 1 January 2017 and 31 December 2019 are required to pay an increased 'buy-out' fee of £14 for every tonne of CO2 equivalent they miss their targets. bit.ly/2jTGaWh
31 Dec 2016	Environment protection	The Nitrate Pollution Prevention (Amendment) Regulations 2016 amend the 2015 regulations, establishing more nitrate vulnerable zones (NVZs). Duties under the nitrate pollution prevention regime will be introduced in phases for the new NVZs. bit.ly/2iRRFvB
31 Dec 2016	Pollution	The Air Quality Standards (Amendment) Regulations 2016 amend the 2010 regulations to implement the changes made by EU Directive 2015/1480. Technical requirements for air monitoring are updated, with minor impacts on local authority duties. bit.ly/2jf8Zf8
1 Jan 2017	Energy	The Renewable Heat Incentive Scheme (Amendment) (No. 2) Regulations 2016 decrease from 20% to 10% the power efficiency requirement for all new solid biomass-CHP plants accredited after 1 August 2016 to qualify for the full tariff. Plants achieving a lower efficiency will be eligible for a proportion of the full tariff, reflecting the efficiency achieved. bit.ly/2gsrQBf
1 Jan 2017	Environment protection	The Environmental Permitting (England and Wales) Regulations 2016 consolidated and revoked the 2010 regulations and amendments. Duties under the regulations remain broadly unchanged. In addition, the new regulations revise the T17 waste management exemption and allow statutory undertakers performing dredging to do so without a flood risk activity permit. bit.ly/2jGbCcO
1 Jan 2017	Environment protection	The Detergents (Amendment) Regulations 2016 amend the 2010 Regulations to restrict the sale of automatic dishwasher detergents that have a phosphorus content of 0.3 g or above in a standard dosage. bit.ly/2jTDs3i
1 Jan 2017	Environment protection	The Plant Health (Forestry) (Amendment) (England and Scotland) Order 2016 amends the 2005 order to apply controls against the introduction of five plant pests. Forestry commissioners will also need to be notified in advance on imports of some fuel wood from specific countries. bit.ly/2j1dWKT
13 Jan 2017	Environment protection	The Merchant Shipping and Fishing Vessels (Port Waste Reception Facilities) (Amendment) Regulations 2016 replace the form for advance notice of waste vessels that plan to discharge at port reception facilities. bit.ly/2j119rQ

This legislative update has been provided by Waterman's Legal Register available at legalregister.co.uk

Latest consultations

27 Feb 2017
Planning fees

The Scottish government is consulting on raising the fee to a maximum of £125,000 (£62,500 for applications for planning permission in principle) for major planning applications. The proposal comes after an independent review recommended a substantial increase in fees for major applications so that the service moves towards full cost recovery.
bit.ly/2jwa5UX

28 Feb 2017
Air flights

Proposals to restrict night flights at Heathrow, Gatwick and Stansted from October 2017 are out for consultation. Explaining the plans, aviation minister Tariq Ahmad said the government was keen to retain the status quo in terms of the number of night flights, and preventing any increase in the actual number aside from the spare movements the airports already have. This would involve changing the framework for managing night flights to ensure the growing number of exempt aircraft do not undermine the purposes of the restrictions and to create greater transparency and more certainty for communities on the number of flights that can take place.
bit.ly/2iJ60Q7

28 Feb 2017
Plastic microbeads

Defra, the Scottish and Welsh governments and the Department of Agriculture, Environment and Rural Affairs in Northern Ireland are seeking views on the UK's proposed ban on the use of plastic microbeads in cosmetics and personal care products. The authorities are proposing to make it illegal to manufacture and sell cosmetics and personal care products containing small particles of plastic, which may harm the marine environment. Microbeads are a common ingredient products such as face scrubs and toothpastes, and may be used in processes including industrial blasting which propels abrasive materials under high pressure to remove surface deposits such as paint.
bit.ly/2hbnUde

2 Mar 2017
EIA Directive

The Department for Transport (DfT) is consulting on proposals to implement the revised EIA Directive (2014/52/EU) as it applies to the Transport and Works Act 1992, the Highways Act 1980 and the Harbours Act 1964. The DfT said, as far as is practicable, its plans retain the existing approaches to environmental impact assessment in England and in Wales because they are well understood by developers, local planning authorities and others involved in EIA processes. It said the intention was to set out the changes to each of these regimes in separate schedules to a single statutory instrument.
bit.ly/2kATyya

New guidance

EMAS and biodiversity	Guidance on using the EU Eco-Management and Audit Scheme (EMAS) to help an organisation manage biodiversity issues has been published by the Global Nature Fund and the Lake Constance Foundation, with support from Germany's federal ministry for the environment, nature conservation, building and nuclear safety. *How to Address Biodiversity Protection through Environmental Management Systems* (bit.ly/2iSeNKI) focuses on using EMAS to better manage of issues related to biodiversity. It complements the scheme's overall management and reporting features.
Permitting charges	The Environment Agency has updated its guidance on charges for environmental permits. It covers fees for new permits, variations (changes), surrenders (cancel), transfers, deployments, registrations and renewals (bit.ly/2k8cNyU). The guide, first published in 2014, covers: flood risk activities; installations; waste facilities; mining waste; mobile plant; groundwater activities (land spreading); water discharge activities and groundwater activities (point source); radioactive substances activities; waste carriers, brokers and dealers; exempt waste operations; international waste shipments; producer responsibility: waste electrical and electronic equipment (WEEE); producer responsibility: waste batteries and accumulators; and the Transfrontier Shipment of Radioactive Waste and Spent Fuel Regulations 2008. Flood risk activities (FRA) have been added to the list. New charges for FRA permits are effective from 4 January 2017. Applicants must pay £50 for each flood risk activity to which their application relates.
Capital allowances and CHP	The Department for Business, Energy & Industrial Strategy has updated guidance on claiming enhanced capital allowances (ECA) for good quality CHP (combined heat and power) projects (bit.ly/2iS4oP8). The ECA scheme allows businesses to write off 100% of their investment in energy-saving technologies that are listed in the Energy Technology Criteria List against the taxable profits of the period during which they make the investment.
Green claims	A guide (bit.ly/2kak8lG) to making accurate environmental claims for products, services or an organisation has been published by the environment department (Defra). It covers: principles of making an environmental claim; ensuring a claim is not misleading; clear and accurate messages; data to support claims; the EU ecolabel; organisations that enforce claims; relevant legislation; and industry specific guidance. Broadly, green claims should be: relevant to anyone buying or using a product or service; clearly and accurately stated; and justifiable.

Fit for fracking

Lucie Ponting looks at the issues facing practitioners working to minimise the risks of onshore gas operations

The decision by the government last October to overrule Lancashire County Council and allow onshore gas operator Cuadrilla to drill at its Preston New Road site is further evidence, if it were needed, of the strength of its commitment to shale gas extraction. This latest move – alongside Third Energy's planning consent for a site near Kirby Misperton in North Yorkshire, which is being challenged in the High Court – makes it likely that hydraulic fracturing will again be under way in England by the end of this year.

Public disquiet over fracking, including opposition from local communities and environment groups, persists. Amid this, environment practitioners are taking pivotal roles to identify, minimise and control the risks associated with the process and ensure the shale gas operators meet the necessary standards.

Steve Thompsett, executive director of UK Onshore Oil and Gas (UKOOG), which represents the operators, says: 'Without environmentalists scrutinising the industry, looking at the process, asking the questions and trying to assess where the risks are, we would all be learning by our mistakes,' he says. 'That is to an extent what has happened in the US. In the UK, we keep ahead of the curve by engaging openly on environmental matters. What we have here is an opportunity to say, "These are what we believe are the most significant risks and this is what we should do to address those".'

Effective management

Whether working for the operators, independent consultancies, regulators or other stakeholders, environment practitioners are key players at all stages, from planning and understanding the makeup of sites to advising on operations and ultimately decommissioning and site restoration.

An obvious question in any emerging sector is whether current methods, technologies, skills sets and regulatory safeguards are adequate to deal with the risks. The government and regulators are clearly confident this is the case for hydraulic fracturing. A much-quoted report from 2012 by the Royal Society and Royal Academy of Engineering concluded the health, safety and environmental risks associated with fracking 'can be managed effectively in the UK, as long as operational best practices are implemented and enforced through regulation'. Along similar lines, the House of Commons Environmental Audit Committee (EAC) stated in January 2015: 'Evidence from a range of government bodies and independent scientific institutions is generally in agreement that fracking can proceed in the UK safely and without harm to the environment provided proper environmental safeguards are introduced and adhered to.'

John Barraclough, senior adviser in the Environment Agency's onshore oil and gas programme and a member of IEMA's Midlands steering group, says all the usual principles of environmental protection and the associated risk assessment tools applicable to industrial regulation and

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water protection are also broadly pertinent to the sector. 'We understand the oil and gas industrial process and techniques, and have been through a rigorous learning process on fracking and assessed the risks. We have expert hydrogeologists and other technical people to assess applications and enforce permits.'

Within the industry, Thompsett believes there is also 'very good knowledge' of the risks and tools and techniques to control them. 'We develop conceptualised site models of the existing environment – both surface and subsurface – to understand how everything interacts, and carry out hydrogeological risk assessments to understand the vulnerabilities of water. We have the tools we need to understand risk. What we then have to do is gather the evidence and monitor to prove that we're complying and not exposing the environment to unnecessary risk.'

Not so different?

The key environmental concerns arising from the fracking process, according to the British Geological Survey (BGS), include:

- carbon dioxide and methane emissions, particularly the potential for increased fugitive methane emissions during drilling, compared with drilling for conventional gas;
- the volumes of water and chemicals used and their subsequent disposal;
- the possible risk of contaminating surface water and groundwater; and
- the physical effects of fracking in the form of changes in seismic activity.

To this list, the EAC added habitats and biodiversity, and noise and disruption to local communities. Broader issues a planning authority should consider include dust, overall air quality, lighting, visual intrusion, landscape character, archaeological and heritage features, traffic, risk of contamination to land, and site restoration and aftercare.

Thompsett argues that, for surface work, the risks from shale gas extraction – noise, dust, disruption, transport, visual issues, surface water pollution – are broadly similar to other types of industrial development. Even at the subsurface, although there are some specific exceptions, the work is not so different from conventional oil and gas operations.

'All the environmental issues associated with development proposals have to go through the same checks and balances and permitting,' he says. 'The surface risks are fairly standard stuff in terms of development but the monitoring and controls have to be relevant.' When it comes to subsurface risks, he acknowledges that the challenges are more unusual. 'It's about how the industry interacts with groundwater, with the geology, and the types of substances that might be used subsurface and how these interact within the well and local geology. The need to undertake hydrogeological risk assessment, for example, is very clear when high-volume hydraulic fracturing is being considered.'

No blanket coverage

Most of the environmental practitioners who manage subsurface risks and stimulation are already likely to have experience in conventional oil and gas. There is also the broader role of the hydrogeological experts and geologists, many of whom have environmental expertise and can apply their skills to the unconventional onshore industry. 'For the surface assessment, development and monitoring activities, it's more standard,' says Thompsett. 'They don't need to be oil and gas experts.'

Gillian Gibson, a consultant and chair of IEMA's professional standards committee, has been involved in health impact assessments (HIAs) for the sites at Preston New Road and nearby Roseacre Wood, which Cuadrilla also wants to develop. She accepts the similarities with conventional oil and gas extraction, but points out that there are also 'a lot of issues people have not previously been required to address'. Offshore, for example, there is no comparable impact on communities in terms of traffic, noise and the landscape.

Gibson's key piece of advice to environment professionals, and anyone involved overseeing the sector, is to keep in mind

that each case is different. 'Don't go for blanket coverage,' she warns, 'because one size does not fit all.' The two Cuadrilla sites illustrate this point perfectly. Although they are only about 5 km apart, they raise very different issues, particularly for local communities. 'The process of fracking is very similar, but there are vast differences in terms of how rural the sites are, transport links, site access, potential waste disposal issues and background noise levels,' Gibson says.

Barraclough agrees, and points to the Environment Agency's publication, *Onshore Oil & Gas Sector Guidance*, first issued in August 2016. 'The industry now knows what to expect [when applying for permits]; what we will be asking to see. But ultimately each application is decided on individual merits. Overriding principles apply but it's all based on site-specific assessments.'

Gibson also urges practitioners with different areas of expertise not to be insular. 'We need to get out of our silos and look at how this process impacts everything,' she says. 'The social, economic, public health, and environmental aspects are all important. We need to look at the cumulative impacts, the totality – how it affects the community and what it means, and this is where the HIA can help in pulling together all the different strands.'

Traffic lights

Two of the most common concerns are the potential for groundwater contamination and seismicity. The Royal Society's report suggested the risk of fractures propagating from shale formations to reach overlying aquifers was 'very low provided shale gas extraction takes place at depths of many hundreds of metres or several kilometres'. It argued the more likely causes of contamination include faulty wells, and leaks and spills associated with surface operations. It stated that well integrity 'must remain the highest priority to prevent contamination'.

In view of this, UKOOG has produced industry guidelines on best practice for shale wells. The Health and Safety Executive, which has an agreement with the Environment Agency on working together to regulate unconventional oil and gas developments, is responsible for regulating well integrity and has a long history of dealing with conventional wells. Disclosure of the constituents of fracturing fluid is mandatory and the environmental permits include conditions that require substances used in associated hydraulic fracturing to be approved by the relevant regulator. Fluids returning to the surface through the well – known as flowback and produced waters – are categorised as mining waste, so the operator must have an environmental permit for their disposal and an agreed waste management plan. Wastewaters may contain naturally occurring radioactive material (NORM) present in shale but NORM management is not unique to shale gas extraction.

'From the water point of view, the crucial difference between hydraulic fracking and conventional oil and gas extraction is the sheer volume of water used,' says Jim Marshall, policy and business adviser at Water UK. 'A fully fractured site could take 20 mega-litres, which is sizeable, especially if there are several operators in the same water supply area. The other issue is the wastewater that comes back – what you don't tend to get from conventional sites is the flowback water – and how that is managed.'

Seismicity is a concern that has arisen mainly from experiences in the US and incidents in the UK in 2011 when Cuadrilla suspended operations in Lancashire after two earthquakes of 1.5 and 2.3 magnitude. Research concluded it was 'highly probable' the test drilling had triggered the quakes.

A panel of government-appointed independent experts subsequently estimated that the UK geology would preclude any earthquake of more than magnitude 3 – a size that occurs three to four times a year in any case – being triggered by fracturing. In response, the Oil and Gas Authority (OGA) has imposed a traffic light system, which triggers a 'red light' if tremors or quakes of magnitude 0.5 or above are recorded. Thompsett says: 'If operators hit that, which is set very low, they have to stop pumping and listen for up to 24 hours and report all findings to the OGA.'

Multi-regulatory control

The main regulators covering the environmental risks of unconventional gas extraction are the Environment Agency (and its sister agencies for Scotland, Wales and Northern Ireland), which issues environmental permits; the Oil and Gas Authority (OGA), which handles licensing; and the Health and Safety Executive, which oversees well design and integrity. The Mineral Planning Authority (MPA) – usually the county or unitary local authority – is responsible for planning permission and enforcement.

The OGA requires an environmental risk assessment (ERA) for proposed shale gas operations where hydraulic fracturing is planned as a matter of good practice. The ERA informs other evaluations, such as the environmental impact assessment, if the MPA decides any of these are required.

The Environment Agency permits can cover the protection of water resources, including groundwater; treatment and disposal of mining waste produced during borehole drilling and fracturing; treatment and management of naturally occurring radioactive materials; and disposal of waste gases through flaring.

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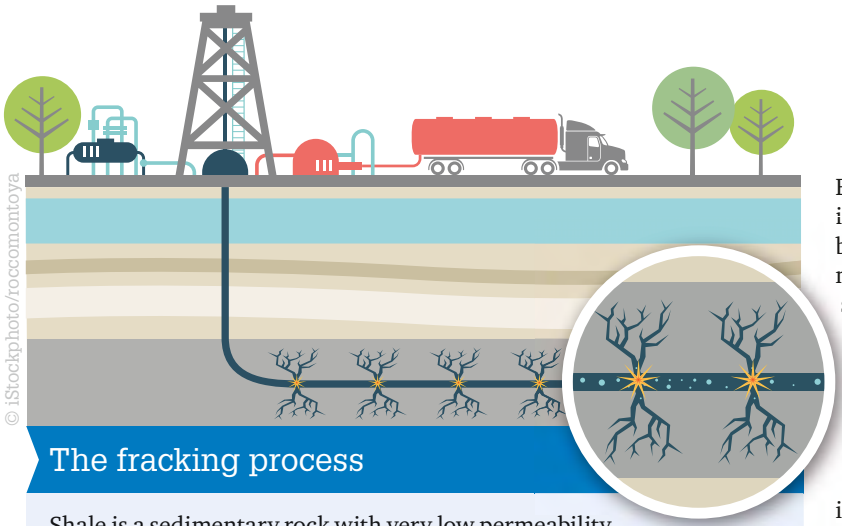

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The fracking process

Shale is a sedimentary rock with very low permeability and formed from deposits of mud, silt, clay and organic matter. The gas trapped in it is mainly – but not exclusively – methane. Because the gas does not readily flow into a well, additional stimulation, known as hydraulic fracturing or 'fracking', is used to access it.

The British Geological Survey describes the process: 'After initial exploration of the shale deposits, a borehole is drilled into the shale horizon at a carefully selected site. It may be drilled horizontally to increase the volume of rock that can be accessed by the borehole. A process called hydraulic fracturing (fracking) is undertaken. This involves pumping water into isolated sections of the borehole at pressures high enough to fracture the surrounding rock. Sand entrained in the water helps to "prop" open the fractures, create permeability in the rock and allow the gas to flow into the borehole. Chemicals are also added to improve the efficiency of the fracking operation.'

Back to baselines

The degree of public concern makes rigorous monitoring and reporting more critical than ever. Baseline monitoring is a key part of this, and something that was lacking in the US in the early days of the fracking industry. 'One of the problems in the US,' says Barraclough, 'is that when methane was found in the water it was very difficult to determine the source – whether it was actually from shale – so we're keen to make sure we have baseline environmental information in the UK to identify any changes.'

The Infrastructure Act 2015 includes a specific provision that hydraulic fracturing consent cannot be issued unless the level of methane in groundwater has been or will have been monitored in the 12 months before the fracking begins. The Environment Agency includes specific baseline, operational and other monitoring requirements in its permits, and UKOOG has produced its own industry guidelines on establishing environmental baselines.

Outside this, the BGS is carrying out regional studies of baseline conditions of groundwater, seismicity, air quality, soil gas and radon to establish whether changes that occur can be linked to hydraulic fracturing and will continue during extraction and after completion. BGS is providing independent monitoring as well as the permit requirements at the Kirby site as part of a government-funded project.

UKOOG is currently looking at best available techniques (BAT) for establishing baselines and for operational monitoring. 'In terms of receptors, there's groundwater, air, soil and so on, and many ways of collecting information,' says Thompsett. Added to these are opportunities to establish efficient and effective BAT for monitoring for the production phase. The importance of this is evident in the US, where there have been lawsuits over the efficacy of techniques to monitor methane leaks from pipework. 'There's a need to make sure we have the appropriate equipment and skills to collect the right information throughout the life of the activity,' Thompsett says. 'It's not only what you look at but also the equipment you use to look at it with.'

Another challenge for environment practitioners, given public concern, is how to communicate information, including monitoring data to stakeholders in a useful, measured way. 'Transparency will be key, but this means putting out data that is properly calibrated and interpreted,' says Thompsett.

Barraclough adds: 'Once sites are operating, the public will require monitoring information. It's the operator's role to provide this reassurance.' Reinforcing the importance of sound interpretation and analysis, he says: 'There is a long list of parameters, and the meaning of raw data may not be obvious to a layperson. There can be spikes in readings, for example, that are not in practice any cause for concern.'

Keep it cautious

Looking to the future, the Royal Society's report concluded by cautioning that there was 'greater uncertainty about the scale of production activities should a future shale gas industry develop nationwide' and 'attention must be paid to the way in which risks scale up'. It further warned that co-ordination between the numerous bodies with regulatory responsibilities must be maintained and regulatory capacity may need to be increased.

From the water perspective, Water UK's Marshall also has concerns about scaling up: 'This is where the biggest unknowns are. At exploration stage, with a handful of wells going up, it's quite easy to give the appropriate scrutiny and attention. Keeping that level of scrutiny going when, and if, it turns into a more mainstream industry is something we need to bear in mind. Regulators such as the agency and HSE are going to have to adapt in terms of their resources and skills to meet the expanded scope as the industry matures.'

But he is optimistic that, by keeping a dialogue open with the industry and regulators, most of the concerns about scaling up, such as greater demand for water supply and treating more wastewater, can be addressed in the longer term. 'If the commerciality is proven, this will also likely drive technical innovation and investment,' he says.

The need for the industry, regulators and those environmentalists working in the sector to adapt and keep learning is clear. Responding to the Lancashire announcement, Mike Stephenson, director of science and technology at the BGS, said Britain needed 'a cautious approach to shale gas development if commercial amounts of gas are found'. He added: 'Regulation has to listen to the science and ensure that engineering is up to the job and that spills and leaks don't occur. The science being done right now will provide regulators and government with the evidence they need to achieve that environmental assurance.'

Lucie Ponting is an environment writer.

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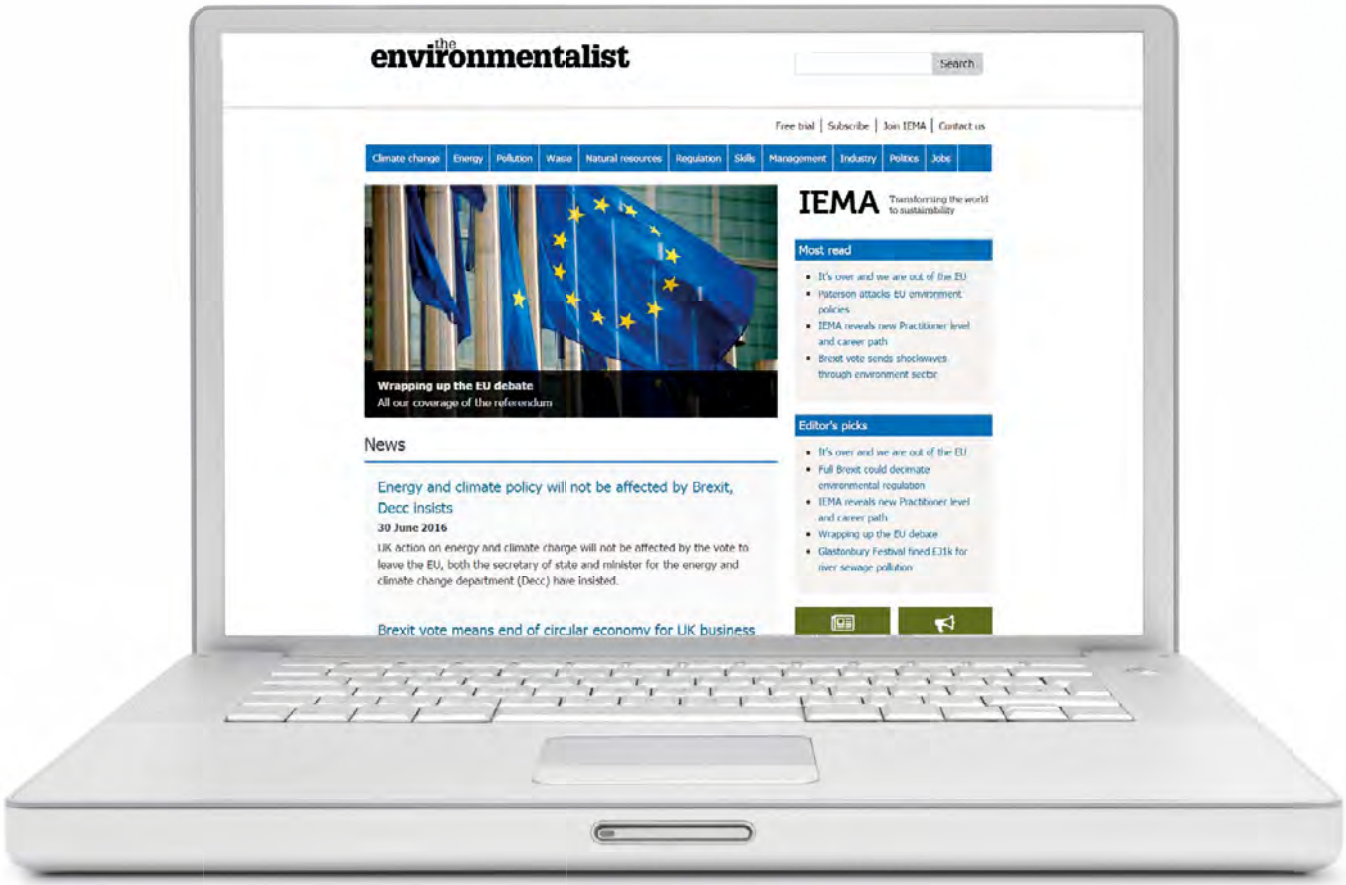

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The wood from the trees

Many companies have benefited from positive media for pledging to end deforestation in their supply chains. But how are they faring on the ground? **Catherine Early** reports

Deforestation is an issue close to the public's heart, with images of orangutans and blazing forests making newspaper front pages and trending on social media. As such, it has climbed up the corporate agenda with many high-profile firms committing to eliminate deforestation from their supply chains.

These pledges ramped up in 2010, when the international Consumer Goods Forum (CGF) said it would work with its members to achieve 'zero net deforestation' – a target it defines as accepting some forest loss through restoration elsewhere as long as no primary or natural forests are used for plantations.

The CGF's 400 members include some of the world's biggest retailers and manufacturers with deforestation-causing commodities – soy, palm oil, beef and timber – at the heart of their supply chains. Four years later 190 national and regional governments, businesses, NGOs and indigenous groups signed the New York Declaration on Forests (NYDF) to halve natural forest loss by 2020 and end it by 2030.

Meeting the pledges

A series of reports published by campaigners in recent months have found evidence of progress, but it has mostly been piecemeal and slow. Last summer, WWF assessed the headway retailers and manufacturers belonging to the CGF had made on sustainable sourcing. Its research highlighted that only 74 (36%) of the 256 companies it studied had made individual commitments to combat deforestation. Only 20% had quantified and timebound commitments related to forest commodities, and 28% had committed to source any commodities associated with deforestation in line with WWF-recommended standards.

Meanwhile, NGO ClimateFocus worked with organisations, including the CDP, the World Resources Institute and the Stockholm Environment Institute, to evaluate progress against the NYDF commitments. It found that most companies – 56–70% of producers, processors and traders, and 64–87% of retailers and manufacturers – had established rules about how goods were produced and sourced that were in line with their commitments.

But the study also revealed that nearly all commitments address only one commodity or a specific geography, while just 43 (10%) of the 415 firms with company-wide targets cover all the commodities they use. Almost 60% of firms that source or produce palm oil and 53% of those using timber had made commodity-specific commitments. For soy and cattle, the proportion

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of companies with pledges was considerably lower, at 21% and 12% respectively.

'Although there are more and more companies claiming a zero net deforestation strategy and there are many NGOs working on the ground protecting forests and supporting local communities, the truth is that deforestation is still growing,' says Bruno Rebelle, general manager at consultancy Transitions and formerly international programme director at Greenpeace International.

Focus of attention

The challenges are multifaceted. Even the companies working hard to solve the problem are grappling with vast supply chains, poverty of subsistence farmers, a lack of agreement on how to define and measure deforestation, and corrupt governments in some of the countries where they operate.

Only 30% of manufacturers and retailers claimed to be able to trace forest products back to the point of origin, according to the CDP's latest data. Ignacio Gavilan, director of sustainability at the CGF, stresses the difficulty of tracing an ingredient such as soy back to the source through complex supply chains populated with intermediaries who have no awareness of the issue. 'It is very difficult to connect the small farmer with your chocolate bar,' he says. The forum has created working groups on different commodities to develop resources to help companies with supply chain issues.

Action on deforestation has tended to focus on specific geographical areas according to public attention and government support. But this can have unintended consequences, says Tom Bregman, project manager for the Forest 500 company rankings at the NGO Global Canopy Programme (GCP). 'Leakage is a major issue. Where a company is working across Latin America, if they've stopped deforesting in one place, we need to find out if they've just moved it elsewhere,' he says.

Glenn Hurowitz, senior fellow at the US-based Centre for International Policy, agrees: 'The companies that have achieved success in reducing deforestation in the Amazon are the same ones that are driving it in the rest of Latin America. I don't know why companies can't find the will to replicate successes elsewhere in their operations.'

Corporate attention also varies by commodity. Gavilan says awareness of soy as a driver of deforestation is low compared with palm oil, which has received a lot of media attention: 'It's very difficult to convince anyone that soy is causing deforestation, especially in Brazil. This applies to the supply chain, but also consumers and decision-makers in companies. It

just isn't visible.' Lack of action on beef could be due to the nature of how cattle are moved around locations. It can be hard to find out where they are and then quantify their impact, says Bregman.

Money talks

Other barriers are outside a company's direct control, poverty being one. Rebelle says: 'A subsistence farmer in Indonesia who clears their land for a couple of hectares of palm oil will earn a monthly revenue equivalent to the average wage in the public or private sector. It's an obvious income, so it's very hard to impose rules on small farmers not to deforest. Who are we to do that?'

In response, some companies have been helping farmers gain certification for products, for example through the Roundtable on Sustainable Palm Oil. Certification is expensive and farmers need financial and technical support, says Stephen Watson, head of corporate engagement in Asia at WWF. However, some firms carrying out such projects are supporting only a small number of farmers, and as such, can be no better than greenwashing, he says: 'We need to make sure they're going to achieve industry-wide change by rolling programmes out widely.'

Lack of government support in countries prone to deforestation is also an issue. Torn between pledges to protect the environment and those to grow the economy, many jurisdictions choose the latter. One of Rebelle's major clients is Indonesian packaging and paper company Asia Pulp and Paper (APP), whose activities were previously vilified by campaigners, in particular Greenpeace. After customers began to distance themselves, APP announced in 2013 that it would end deforestation in its operations.

The decision was poorly received by others in the paper and pulp sector, and corruption between industrial interests and the government caused difficulties for APP, Rebelle recalls: 'It was a radical U-turn. The rest of industry thought it was crazy and did not want to follow its example. It's very hard for APP to be on the receiving end of criticism from NGOs for not doing enough and being criticised by government and other companies for doing too much.'

Rebelle thinks pressure from the international community for Indonesia to meet its commitments under the Paris agreement on climate change could provide the stimulus for progress. More than two-thirds of Indonesia's carbon emissions come from deforestation, so significant reform is inevitable, he says. 'There are more and more incentives and external conditions pushing the government, but still there are strong forces of resistance.'

Another force for change could come from the finance and investment community. The number of investors that have signed up to CDP's forests programme has risen by one-fifth since 2015, with new signatories last year including investment banks UBS and Morgan Stanley. They bring the number of institutional investors requesting corporate deforestation data through the CDP to 365, compared with 184 in 2013. These institutional investors control

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assets worth around $22tn and have asked companies to disclose how they are managing the direct and indirect risks posed by deforestation. Similarly, nearly one-fifth of the 150 investors analysed in the latest Forest 500 rankings now have an investment or lending policy that promotes the protection of intact, primary, or high conservation value forests.

At a webinar hosted by the GCP and sustainability events company the Innovation Forum in December, Samuel Mary, senior sustainability research analyst at financial services company Kepler Cheuvreux said the UN Sustainable Development Goals and the Paris agreement were pushing deforestation up the agenda for investors. Disasters such as the Indonesian forest fires of 2015 had raised awareness of the physical risks associated with deforestation, he added.

During the webinar, Sylvain Augoyard, corporate social responsibility analyst at French bank BNP Paribas, said banks were increasingly asked to fill the gaps in regulation through due diligence on companies they were considering lending to, but it was not an easy task. 'It's hard to find the facts on the ground between what a campaign group is saying and what a company is saying,' he said.

WWF has been encouraging pension funds, stock exchanges and financial regulators in Asia to introduce policies on deforestation as a way of minimising risk, according to Watson. Although some international banks now refuse to lend money to companies with forest commodities in their supply chain if they are not member of the Roundtable on Sustainable Palm Oil, local banks are not yet on board, he says.

Better enforcement

One idea floated recently by the Centre for International Policy to speed up the battle against deforestation and improve transparency is an industry-wide system to police the issue. This would involve major palm oil buyers jointly monitoring deforestation and excluding guilty farmers from the market. A similar system employed by buyers of soy in the Brazilian Amazon cut deforestation associated with this product from 25% to 0.25% within three years, according to Hurowitz.

Gavilan warns that such a system risked putting companies in breach of competition law or trade deals. 'If companies discuss sourcing strategies they run the risk of creating cartels that displace others,' he says.

However, UK retailer M&S has found a way to collaborate with other companies on palm oil sourcing without breaking competition law. It founded a forum with other retailers to identify the main palm oil operators and traders that import into the UK, such as Cargill and Wilmar. The forum asked them questions about the smallholders supplying them to discover which companies were performing well and which were not.

Aware of the risk of breaching competition law, M&S took the precaution of taking extensive legal advice in developing its policy. Sustainable development manager Fiona Wheatley says: 'We can gather data and verify it collectively, but decisions on what to do with that have to be taken individually. As individual companies we can choose to exclude some companies from our supply chains or make them approved suppliers.' M&S is now developing a second phase, and is working with a third party to refine its process, she says. It has introduced a scoring system that companies can tailor to their own policy priorities, by assigning different levels of importance to criteria such as working with smallholders and peatland protection.

Technological change

Companies and campaigners are ramping up use of technology to aid supply chain transparency. At the end of last year, the GCP and the Stockholm Environment Institute launched Transparency for Sustainable Economies (Trase), a tool that draws on publicly available data on production, trade and customs to reveal the flows of commodities that are driving deforestation. Starting with Brazilian soy, it will expand over the next five years to cover 70% of total production of palm oil, soy, cattle and timber.

The World Resources Institute (WRI) has various data tools to monitor deforestation risk as part of its Global Forest Watch project, a free resource that enables anyone to create custom maps, analyse trends, receive alerts about forest clearing and download data for anywhere in the world. Last year, the WRI teamed up with Proforest and consultancy Daemeter to develop the PALM Risk Tool. This works on the assumption that, although few companies can trace their palm oil to the plantation level where deforestation takes place, most have data on the industrial mills where it is processed. Because the oil must be processed at a mill immediately after harvesting, the think tank found that deforestation risk could be gauged by automatic analysis of satellite imagery and other data within 50 km of each mill. It then ranks each mill based on past behaviour and proximity to forests, carbon-rich peat soils, fires and protected areas. It includes a global dataset of nearly 800 mills, and companies can upload their own processing facility to an interactive map.

Unilever piloted the tool and found 29 mills, about 5% of its supply chain, were at high risk of causing deforestation. A spokesperson for Unilever says the analysis provided a first indication of the potential risks and that the firm is now working on a more detailed analysis of the mills identified.

Luiz Amaral, global manager of Forest Watch Commodities at the WRI, says the aim was for companies to integrate the information into business operations and management systems so that non-sustainability professionals could use it to make day-to-day decisions. 'There's no more excuse to do nothing – the information is there and easy to use,' he says.

It remains to be seen whether technology advances could provide the urgent catalyst needed to meet looming 2020 zero deforestation deadlines. Rebelle says: 'It's a very fragile process of transformation, but it's going in the right direction. Hopefully it will go fast enough to reach the point of no return as soon as possible. I'm reasonably optimistic.'

Capping emissions

Capgemini's Matt Bradley tells **Paul Suff** about the company's carbon ambitions

Capgemini UK set new environmental objectives last year after meeting a previous target to reduce its carbon footprint for non-datacentre activities two years early. A key commitment was for the professional services company to become 'net positive' and cut three times more carbon from clients, suppliers and staff than it generates from its operations.

In 2015, Capgemini UK shaved a further 11% off its emissions, which chief financial officer and executive sponsor for the firm's environment initiatives, Tony Deans, said brought it closer to its net positive aspiration. Now the French-owned business has gone further still, announcing a new programme of 2030 objectives across the range of sustainability issues (panel, left).

Matt Bradley, group environment lead, claims the new programme is something that no other business has attempted. 'Capgemini wants to be different and needs to be "out there" in its thinking. Our mantra is to be the best we can. We are always trying to be 18 months ahead of the game. Some people think what we talk about is crazy.'

A matter of importance

When Bradley presented his initial ideas for the new programme to the UK board in April, the response was enthusiastic. 'I unveiled it as a 12-month project, but the board liked it very much and wanted it sooner,' he says.

This engagement is at the highest level. Capgemini UK established its corporate responsibility and sustainability (CRS) board in 2007 (it is now replicated globally). It has overall governance of CRS matters and comprises the chief executives and other senior executives from the firm's business units and is chaired by Paul Margetts, chief executive of application services. Bradley reports to James Robey, global head of corporate sustainability, who is responsible for the global sustainability agenda at Capgemini. This covers more than 40 countries and almost 180,000 staff.

The tough new targets are a deliberate ploy to bring out the best in people. 'The aim was to create a programme that pushes the boundaries,' Bradley says.

2030 targets

- To reduce the carbon footprint per employee by 20% by 2020 and by 40% by 2030 (compared with 2014)
- To reduce business travel emissions by 25% by 2020 and 50% by 2030 (compared with 2014)
- To reduce office energy consumption by 20% by 2020 and 40% by 2030 (compared with 2014)
- To improve data centre energy efficiency and reduce the average PUE (power usage effectiveness ratio) to 1.5 by 2020

'If you make targets hard, I believe people will try that bit harder to reach them. They will get people thinking.' He adds that the targets will act as a reminder to the business that it needs to continue to take action and to make resources available. 'We have to keep telling the board the firm needs to do more. We don't want them thinking they've invested heavily for eight years in measures to reduce emissions and our buildings are now 40% more efficient. They have to keep investing, achieving ever higher standards.'

The 2030 goals include interim targets. Staff and the business units need to know they are making progress, maintains Bradley: 'They need something to move towards.' He says it is relatively easy to generate support for short- and medium-term targets, such as to 2020, but not longer-term ones. 'It is more difficult to get buy-in for a 2030 target. It's such a long way off. And anything further is just "greenwash".'

Own backyard

The 2030 programme fits with Capgemini's corporate responsibility and sustainability vision to be a leader in sustainable excellence. This it defines as affecting positively clients, staff, society and the planet through 'bold and influential' action. In terms of environmental sustainability, this involves Capgemini reducing its own impacts and working with clients, suppliers and people to moderate theirs. The firm is committed to becoming a 'net positive'

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business, so its positive social and environmental impacts outweigh the negative ones. 'As a business, the biggest influence we can have is with our clients. But we have to keep working to get our own house in order,' says Bradley.

The UK operation set new environmental objectives in 2015 after surpassing previous targets to reduce its CO_2 footprint for non-datacentre activities by 20% by 2014 against 2008 levels – it achieved the target in 2012 and by 2014 had reduced its footprint by 29%.

Energy-efficient offices are key to the company shrinking its carbon footprint. Bradley reports that 40% of the 29% reduction in carbon achieved by Capgemini UK by 2014 compared with 2008 was from measures to curb energy use on its estate. Principal among these was the installation of LED lighting and building management systems that enable office temperatures to be set remotely. UK sites reduced energy use by a further 7% in 2015, with 14 of its 22 offices cutting consumption.

Of the 9,000 workforce in the UK, only 2,000 are based in Capgemini offices. TravelWell, the firm's award-winning approach to business travel, has helped to drive down travel-related emissions by 30%. The scheme encourages employees to 'think green and think smart' on travel choices. Initiatives have included installing video or teleconferencing and other collaborative working tools. Virtual working, flexible working hours, and personal carbon statements have also been introduced.

Capgemini UK reports that its staff averaged 2.8 million minutes of Skype and video conference calls a month in 2015. Bradley, who uses online conferencing tools where possible to reduce his own travel, says video is good if you are in an office, but something like Skype is better for employees who are mostly mobile.

He concedes that online meetings are not always best: 'Sometimes people need to travel; they need to have face-to-face interaction. Also, we're supplying a service and clients tend to expect you to be visible. So you need to have a conversation with the client. It's also about staff wellbeing, or productivity, so it might entail altering conventional work patterns.'

He acknowledges that tackling emissions from travel can be tricky, and remains a challenge for the consulting sector: 'Business travel is a particular issue for the professional services industry. Overall, it is 30% of our carbon footprint, although this varies from country to country, with flights accounting for a significant proportion of business travel in India and the US.'

Each month Bradley examines sustainability data for the UK, while global data is reviewed quarterly. 'When we spot issues, we quickly intervene to find out what is happening and why, and to identify possible solutions.

'You can't take the figures at face value. You have to understand why there has been a change. In France, a strike by air traffic control staff has in the past skewed monthly data.'

It is sometimes possible to use such events and incidents to engage staff on changing their behaviour. 'You can ask people how they overcame the


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The magic of Merlin

Matt Bradley, group environment lead at Capgemini UK, describes the company's Merlin site in Swindon as one of the world's most sustainable datacentres. 'Others might beat its power usage effectiveness but, because it's housed in the old Honda parts factory, is a modular construction, has a fresh-air cooling system and uses flywheel technology to eliminate batteries, Merlin is a real leap forward,' he says.

The 3,000 sq m centre opened in September 2010 with a design that minimises water use and optimises energy performance and heat management. It uses pre-assembled data modules. The factory-built units, which are constructed of 95% recyclable materials and have very low embedded carbon, can be transported to site and be installed quickly. The typical lead-time to construct a conventional datacentre is around 18 months. Bradley says the modular idea for the datacentre stemmed from the purpose-built, fully equipped hospitals that were dropped by helicopter into the desert during the Gulf War. 'Instead of building a big, empty building and fill it with servers over several years, we decided to install new modules as when we need them. When we run out of data space, we order a new module, which arrives six weeks later on the back of a lorry. It is offloaded, plugged in and ready.'

Innovative engineering solutions have been used at Merlin to save energy and reduce running costs. Flywheel UPS technology uses stored kinetic energy to replace batteries, while an independent building management system for the modules incorporates a cooling unit that uses primarily fresh air cooling for external temperatures up to 24°C, with secondary evaporative cooling controlling temperatures up to 34°C.

Swindon was one of 360 potential sites considered and was ultimately selected on the basis of power availability, telecommunications and environmental factors. The Wiltshire town has optimum air quality, temperature and humidity, so the facility requires minimal cooling, says Bradley. He uses the story of Goldilocks and the Three Bears to describe why Merlin is in Swindon: 'It's not too hot or too cold, it's just right.'

Capgemini continues to invest in measures to drive down energy consumption, installing differential pressure sensors last year to improve airflow and cooling at Merlin. The firm wants to improve datacentre energy efficiency by 25% by 2017 against 2014 levels.

disruption to flights,' Bradley says. 'Did they use video conferencing instead? Did it work?' Engaging staff on the issue of travel should not solely be about pointing out the environmental benefits, he stresses. 'We promote smarter travel: what the alternatives are, and what the impacts of travelling less might have on, for example, home life or productivity.'

The bigger picture

Reducing operational emissions is only one element of the commitment by Capgemini UK to be net positive. The company believes that its expertise in technology and business processes, combined with the experience in reducing its own emissions, puts it in an ideal position to support suppliers and clients in achieving reductions.

Capgemini operates a red, amber and green system for suppliers, which scores them against sustainability metrics. 'It's an online survey, covering everything across the sustainability spectrum, from carbon emissions to diversity,' says Bradley. However, suppliers need not complete the whole survey. 'It all depends on the size of the business. We would not expect, say, a legal practice in Ireland employing five people to have emissions reduction targets, but they might recycle and install energy-efficient equipment.'

Bradley says Capgemini has a team to help small and medium-size suppliers engage with sustainability. Firms that rate red or amber undergo an assessment to see whether the score is due to a mistake in submitting the information or whether sustainability is not considered important. 'Red or amber means it is time for us to have a conversation. We want to help them do better but we won't continue to use those that refuse to change.'

Client services support Capgemini's carbon aspirations. Its sustainable datacentres, including the Merlin facility in Swindon (see panel, left), is one example and, due to their high energy efficiency, will help clients reduce their emissions.

Fast forward to 2030

Bradley accepts that Capgemini will be unable to eradicate all its emissions. 'We'll focus on reductions, but we might need to consider offsetting emissions at some stage,' he says.

But offsetting is a contentious issue, and Bradley stresses that it should be used only for emissions that are impossible to eradicate. 'It shouldn't be considered as salving your conscience. You still need to invest in energy efficiency. You still need to engage staff to travel only when necessary.'

Business travel will continue to be one of the main challenges to bring down emissions, as will engaging colleagues in other parts of the business that are perhaps new to sustainability. Capgemini's acquisition of the US technology firm IGATE in 2015 swelled the global workforce by more than 30,000, including many in India.

Bradley is keen that the term 'net positive' is more widely understood in business. He also wants more transparency. 'We need to measure and communicate what Capgemini's contribution is, and also how we look at the whole picture – good and negative. The major focus for our net positive programme will be about promoting the need – and ability – for our industry to be part of the solution.'

Bradley believes that continuous communication and engagement is key to overcoming environment and sustainability challenges: 'You have to get people to continually re-engage with sustainability or it becomes the status quo. That's why communication is important and why we have to get the messaging right.'

Asked where he expects Capgemini to be in 2030, Bradley says he believes it will be a truly sustainable business.

Space – the final EIA frontier?

Steve Mustow considers whether space exploration and exploitation require impact assessments

Sixty years after the Soviets blasted the pioneering Sputnik satellite into orbit around Earth, it is clear that humankind's space mission is far from accomplished. If anything, it seems to be gathering pace as NASA's Juno probe sends back information about Jupiter, the joint European and Russian ExoMars searches for evidence of life on Mars, and the European Space Agency digests the information about Comet 67P/Churyumov-Gerasimenko courtesy of its Rosetta craft.

Amid this is a private sector that is increasingly attracted to the exploitation of space. SpaceX, the US aerospace manufacturer owned by business magnate Elon Musk, has completed several missions, among them sending a craft to resupply cargo to the International Space Station (ISS). The company is also working on a reusable launch system and recently announced its intent to develop interplanetary transport that could be used to colonise Mars within several decades. Richard Branson's Virgin Galactic has plans to develop spacecraft for suborbital and orbital missions, including for tourist spaceflights. Meanwhile, companies such as Moon Express, Planetary Resources and Deep Space Industries are about to undertake exploration activities as a precursor to potential mining of the moon and asteroids. However, little consideration has been given to the potential environmental impacts of these activities on what is pristine wilderness.

Legal protections

The legal framework on the use of space is weak, particularly from an environmental perspective, and there is little guidance on assessing the environmental impacts (EIA). Five UN treaties adopted in the 1960s and 1970s cover space activities. None specifically covers environmental assessment, although the UN Outer Space Treaty of 1967 holds that what lies beyond Earth is 'the province of all mankind' and that 'the moon and other celestial bodies shall be free for exploration and use'. The UN Moon Agreement of 1979 states that lunar resources are the 'common heritage of mankind'.

The legislation of some space-faring nations covers EIA of space activities, such as the US National Environmental

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Policy Act (NEPA). NASA policy also requires assessments for debris generation potential and debris mitigation options, and the US has other safety procedures when nuclear power sources are launched into space. But, in general, environmental assessment is not treated as a key issue among space-faring nations even if a mechanism for this is incorporated in legislation and policy.

The US Commercial Space Launch Competitiveness Act 2015 enables exploitation by granting American citizens and companies ownership of materials they can extract from extraterrestrial bodies. It addresses safety but makes no reference to environmental protection.

Exploration and exploitation

EIA procedures for space activities would require adaptation from those used on Earth and would have to consider the impacts to the launch site and surrounding area, the wider global environment, and the region of space where the activities take place.

The environmental topics covered by the EU EIA Directive 2014 (2014/52/EU) are used here as a basis for the discussion. This is because many of the impacts associated with the construction and operation of launch sites are similar to those associated with developments, such as industrial plants and airfields.

Population and human health – There are risks associated with space launches, including the potential for accidents, resulting in explosions and debris falling to Earth. For that reason, launch pads are usually sited away from human settlements and flight trajectories routed over areas with sparse populations. Risks from Earth orbital missions relate primarily to space debris re-entering the atmosphere and landing in populated areas. In addition, there are radiological contamination risks from the nuclear power sources that are often used in spacecraft, with consequences for human health and ecological systems. The creation of orbital space debris also increases risks to human populations in orbit around Earth. Those populations now consist of a small number of astronauts on space stations, but in future these could increase, not to mention the presence of humans on other planets, their moons or on asteroids.

Biodiversity – Risks to biodiversity arise from the potential for debris to fall to Earth, particularly if it includes radioactive material. There is limited risk to biodiversity when craft circle the Earth, although there is evidence that microbes are present in layers of the atmosphere relatively close to lower levels where satellites orbit. However, the risks become apparent on more adventurous missions, particularly to planets such as Mars that may sustain life now or might have done in the past. The hazards relate to introducing microbes from space vehicles already contaminated on Earth. If these species are capable of surviving and reproducing on the new planet or moon they could start to colonise it, confounding attempts to discover whether life already existed there.

Also, if life does already exist, the introduced species might compete with it. Planetary protection protocols are therefore put in place on missions to other planets, involving practices such as sterilising equipment before launch. As space missions become larger in scale, exercises such as mining could remove a habitat and destroy forms of life, should they exist. Similarly, if extraterrestrial microbial life was brought to Earth this could cause impacts if released into the wild.

Land – Given that to date there are no human settlements on other members of the solar system, land take is not an issue and the availability could be viewed as unlimited. However, if the exploitation of space gathers pace, this may change, sparking competition for uses such as human settlement, mining and protective 'greenhouses' for growing food.

Geology and soil – Like on Earth, soil could prove a key resource for human settlers. Careful environmental assessment of new activities and developments will therefore be required to determine the potential to deplete it through contamination or excavation. Geological resources are likely to be important not just as sources of raw materials, but also in terms of what they reveal about the history of the planet itself. In some cases, they may be important on a larger scale, perhaps for understanding the development of the universe itself.

Water – The availability of water will be a fundamental constraint in human exploitation of space, so finding sources will be a high priority. Evidence already points to there being water on Mars, most likely frozen but possibly also in liquid form. The potential effects on the water environment will therefore be a key consideration in EIA of projects affecting planets that have or may have reserves.

However, these may be very limited so any activities that deplete or contaminate the resources are likely to have far-reaching effects. In some cases, vast quantities of water may be found, such as on the moons of Jupiter and Saturn, where liquid seas may exist under a surface layer of ice. It may therefore be necessary to assess water quality, hydrology and hydrogeology as we do on Earth.

Air – Waste products from space launches depend on the type of propellant used in the rocket motors and can range from water vapour to harmful hydrochloric acid (HCl), nitrogen dioxide, carbon dioxide and soot. This is something to bear in mind given the damage caused to vegetation and aquatic life near the Kennedy Space Center, Florida, due to the HCl produced from space shuttle launches.

Although other planets and their moons do not have 'air', some have atmospheres or exospheres (extremely thin atmospheres), that of Mars being about 100 times thinner than Earth's and 95% carbon dioxide. Industrial activities that release gaseous or particulate pollution would have an effect on these atmospheres, as would action to make them more suitable for human habitation.

Climate – Emissions from space launches have the capacity to affect climate change and exacerbate ozone depletion in the upper atmosphere. HCl is a concern because chlorine bonds with ozone, and other reactive exhaust gases can also break down this protective layer. In addition, the cumulative effects of carbon dioxide, carbon monoxide and


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soot emissions are linked with climate change. The infrequency of space launches renders these as insignificant now but any increase in activity may change this. In relation to other planets, human activities could alter their atmospheres and hence their climates.

Material assets and natural resources – Space exploration is a relatively recent phenomenon, but already it has the potential to 'sterilise' material assets as debris accumulates in Earth's orbit. Due to the relative velocities at which debris and spacecraft travel in orbit, even small pieces of debris can be highly destructive. Further afield, developments on planets might disrupt or sterilise economically important mineral or water resources.

The use of natural resources will require detailed management and assessment since some may be in limited supply and difficult or impossible to transport. As well as water and soil, other examples may include metals and minerals. The effects on energy resources would depend on the type of resources used. Presently solar, nuclear and chemical energy sources are important in space exploration, but in future other sources may be developed, with geothermal energy a possibility on Mars.

Cultural heritage – Space debris needs to be considered in relation to its cultural heritage value. Into this category would fall some of the debris still orbiting Earth as remnants of the first ventures by humans beyond the planet. Also, material left on other bodies from previous exploration will have heritage value, from the modules and commemorative objects left on the moon to the Rosetta probe and Philae lander which were recently landed on to Comet 67P.

Landscape and visual impacts – The creation of a spaceport involves introducing tall structures, including the vehicles themselves, as well as other infrastructure such as launch pads, buildings and access roads. There is therefore potential for landscape and visual impacts to arise. The landscapes of Mars and the moon are more or less pristine, with initial space exploration activities having had negligible impact. Plans are being made to prospect for and then mine valuable minerals, which could change the landscapes significantly. If human populations are present in future, visual impacts would also arise. This would also be so should large structures be sent into orbit. These would be clearly visible from Earth, particularly when reflecting sunlight; already orbiting satellites can be seen by the naked eye at night and the ISS can sometimes appear as bright as the planet Venus.

Residues, emissions and waste – As well as the radiological contamination and rocket exhaust emissions associated with launches, noise and vibration are issues too, with take-offs commonly heard several kilometres away. Some types of launches cause sonic booms and noise also arises from aircraft used for transportation and training. Launch stages are often jettisoned over the ocean, although in some cases they are recovered. When abandoned they are left to sink to the ocean floor, leaving the risk of localised pollution from residual propellant.

Pollution and nuisances also have the potential to arise from space activities in the orbital environment and beyond. The potential for significant effects will depend on the nature of the pollution and the presence or otherwise of human or biological receptors. The effects of activities on lifeless planets without a human presence may be negligible unless the pollution is long-lasting and affects future settlers. Pollutants may well be different from those that are commonly encountered on Earth and would be likely to have different impacts and follow different pathways.

Once exploitation of resources deeper into space occurs, particularly involving human settlement, greater consideration of the disposal and recovery of waste will be needed. This will be required to conserve and reuse finite resources, but should also be linked to protection of the space environment.

The way forward

Some areas of EIA for space exploration and exploitation are similar to those for Earth-based assessments, while other areas are more complicated and uncertain. One is that EIA of space activities will involve consideration of transboundary effects because the activities take place beyond national boundaries and risks posed by falling debris and atmospheric impacts extend beyond host country borders. And, given the extreme and isolated nature of space it is difficult to mitigate environmental effects once they have arisen and to remove waste caused by human activity. Efforts will be hampered further by the significant deficiencies in knowledge of the space environment, while it may be difficult to obtain information to use in an EIA because space exploration is highly commercial and militarised.

Although some of these scenarios would arise far in the future, if at all, it nevertheless remains important that an international legislative framework for EIA of space activities is developed, alongside standardised protocols for assessing environmental effects.

The Antarctic Treaty, which includes a protocol for environmental protection, would be a good template for the space environment. Like space, the Antarctic is a pristine environment and regarded as the property of all humanity. Treaties to protect the oceans are relevant, given their transboundary nature, as are EIA techniques that have been developed for exploitation of the deep ocean, given that they relate to projects in an extreme environment with limited baseline data.

The space-faring nations and companies with ambitions beyond Earth all have development programmes. Strategic Environmental Assessment (SEA) is a valid tool, which should be promoted for evaluating the effects of these programmes and developing mitigation before EIA is undertaken.

Given the likely advances in space exploration and exploitation over the next few decades it is important that environment professionals become more engaged and work with the relevant bodies to develop robust safeguards.

Steve Mustow is a senior director at WYG. The consultancy's experience in this area includes a feasibility study for a proposed spaceport, which considered a range of environmental issues. WYG is a member of IEMA's EIA Quality Mark scheme.

Reasonable alternatives

Consultancy Savills uses a real case to show how different options should be part of the assessment process

The revised EIA Directive, which must be transposed into UK law by May 2017, will require the impact assessment to consider and compare reasonable alternatives and provide the rationale for those chosen.

To show how the stipulation will work in practice, take the example of a planning application for a high-voltage electric line (132kV) that will run above and below ground.

Setting the scene

Studies indicate that reasonable alternatives in EIA should meet six criteria:

- they are considered early in the design process;
- they are credible and appropriate for the project;
- comparisons have been made between them;
- a consultation has been conducted on them;
- they include additional forms of mitigation alongside the alternatives; and
- the environmental statement contains information on alternatives and the approach used to select them.

The application for the electric line was submitted to the Planning Inspectorate under the Planning Act 2008 and consisted of the construction, operation and maintenance of a new connection between a generating facility that had been granted approval and an existing overhead line (OHL). The link was approved by the secretary of state in 2016.

The starting point for considering other routes under the 2008 act is for the examining authority to look at what is proposed in the application. The authority cannot suggest its own routes.

The scheme developer produced a strategic optioneering report (SOR), which set out the costs of the engineering options available to connect the generating plant to the electricity network. The developer believed there were several ways to connect the two, including overhead lines, underground cables, alternative connection points and a separate or combined route for the generating facility.

The SOR provided details of the developer's network and explained why one grid supply point was the preferred connection point. The route options for this connection formed the basis for the consultation among stakeholders during the statutory pre-application process. A recurring theme was the desire of interested parties – comprising statutory bodies, NGOs and the public – for the connection to be entirely underground.

Planning considerations

A desk-based assessment of environmental constraints was carried out by the developer of the study area as well as a spatially defined area around it. This assessment identified designated areas and features. The developer then outlined its:

- **Preferred route corridors** – These were suggested to avoid nationally designated areas, such as national parks and areas of outstanding natural beauty. The developer carried out a consultation to assist in deciding the preferred corridor.
- **Selected route corridor** – The developer included several potential route alignments in its preferred corridor and a statutory consultation was carried out with stakeholders. The developer also consulted on the proposed development, which included the OHL and underground section.
- **Route alignment** – The preferred route alignment was chosen and formed the basis of the application for a development consent order (DCO).

National Policy Statement (NPS) EN-5 states that, if there are serious concerns about a proposed overhead line's possible adverse landscape and visual effects, mitigation may be best. Concerns about these effects were two of the main drivers for selecting the preferred route. The developer concluded that running the line underground would mitigate what would otherwise be highly significant adverse impacts in one area.

Most interested parties were opposed to the OHL. In their representations, they suggested four options to the developer's preferred alignment: putting the whole

route underground; using an existing OHL; running the line in trunking next to a main road; and placing a further section underground when it reaches a non-statutory designated area that is deemed sensitive in terms of cultural heritage.

In law

Under the Infrastructure Planning (Environmental Impact Assessment) Regulations 2009 (as amended), there is no requirement to assess all potential options, only to provide a review of those that have been considered. In relation to the first – laying the whole route underground – the developer persuaded the examiner that the extra economic, social and environmental impacts would clearly outweigh the benefits. The developer concluded that the second and third options – using an existing OHL and the trunking next to a main road – were not plausible. There were additional costs and potential landscape impacts associated with the second, while the trunking was not believed to be big enough to support underground electricity cables.

The examiner recommended that option four – laying the lines in a culturally sensitive area – be included in the DCO. In its favour was the lack of objections to this approach during the consultation and because it complied with local policies.

Lessons learned

Stakeholders were engaged in the development of the project early on – more than two years before the planning application was submitted. Engagement was also extensive, with three separate rounds of consultation, although some stakeholders failed to appreciate how to engage with the process of proposing other solutions.

The key messages from this case study are that, if interested parties wish to have an alternative considered in an examination, they need to:

- engage in the pre-application consultation;
- provide substantive information on proposed alternatives; and
- ensure these are reasonable (in accordance with reason or sound thinking), credible and suitable.

Developers, meanwhile, must ensure that the proposed alternatives:

- have undergone a form of consultation that may have influenced their selection;
- have been compared against each other; and
- suggest additional forms of mitigation.

All parties in the process need to understand that the starting point in considering alternative routes under the 2008 act is that the examining authority can look only at what is proposed in the application. It cannot suggest an alternative or recommend granting a DCO for a scheme that follows a different route or locations for works other than those in any draft order accepted for examination. The examining authority can consider an alternative only if it has been put forward as part of the application, although other options can be looked at if they are proposed and accepted into the examination.

The Savills' team is: **Tim Waterfield**, director of strategic projects; **Karl Cradick**, director of planning; **Richard Frost**, director of energy and planning; and **Gillian Froud**, associate director strategic projects.

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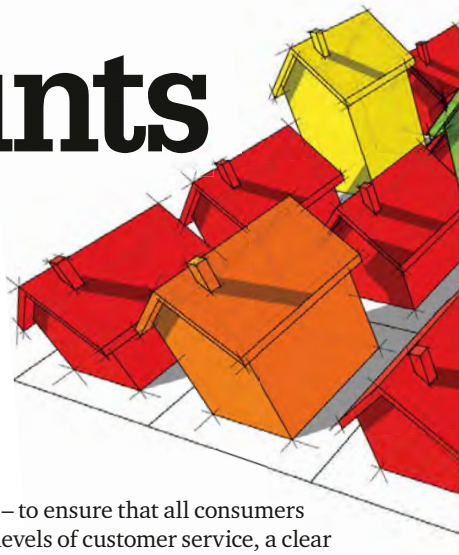
Every home counts



IEMA Fellow **Paul Reeve** scrutinises the Bonfield review on improving the energy efficiency of dwellings in the UK after the axing of the Green Deal

The words 'green' and 'deal' are synonymous with the UK's failure to roll out a domestic energy retrofit programme. This is accentuated by the fact that housing generates around a quarter of UK carbon emissions – well over 100 $MtCO_2e$ in 2014, including electric heating. Even a 10% improvement across 23 million homes could reduce carbon emissions by nearly 3% and have considerable social benefits, so scalable domestic energy retrofit remains a hugely attractive option.

To learn from the Green Deal scheme, which was effectively scrapped by the government in July 2015, and suggest how to move forward, Peter Bonfield, chief executive at BRE, was asked by Amber Rudd, then energy secretary, to report on delivering scalable domestic energy retrofit.

The review, *Each Home Counts*, was published by the Department for Business, Energy & Industrial Strategy in December 2016. It focuses mainly on how to ensure that domestic consumers and providers of housing can access good quality, energy-efficient solutions, rather than the merits of specific products or technologies. Yet the proposals are extensive and, in places, radical, which makes them of significant interest to customers, manufacturers, and the contractors who fit energy-saving products, both passive (such as insulation and double glazing) and active (such as heating controls and PV).

Energy quality mark

Bonfield's review begins by recommending that future government and other funded domestic retrofits should work to a new framework with a new quality mark (QM) issued by an approved certification body. He envisages that the QM would build on recognised consumer brands, such as the Gas Safe Register, TrustMark and Kitemark, and help consumers identify who can provide quality energy installation or advice. The framework would be overseen by a strategic governance board, comprising representatives from industry, consumer protection organisations and the government.

For the QM to take off, it must be widely specified by those who provide consumers with financial help so that service providers have the market incentive to work to numerous supplier requirements recommended in the review. These begin with a:

- consumer charter – to ensure that all consumers receive 'excellent levels of customer service, a clear redress process, and guarantee protection';
- code of conduct – governing how service providers behave, operate and report. This must be met or exceeded for the company to operate; and
- codes of practice – relevant to the installation of each renewable energy or energy efficiency measure to reduce the risk of poor quality installation.

Supplier skills and behaviours

Those choosing to work within the framework would need to show various 'skills, behaviours and competencies', including:

- technical competence – to ensure health and safety, underpinned by regulatory power to discipline those that fall below required competence levels;
- quality performance – to ensure measures are installed in a way that meets performance requirements; and
- customer interfacing skills – to ensure those operating in homes do so in line with good customer service.

Perhaps optimistically, the review looks for the domestic supply chain to 'embed core knowledge, including basic building physics, design stage and consumer interaction into vocational and professional pathways, including qualifications, training courses and apprenticeships'. In a chapter on the role of smart meters and the national rollout, it calls on installers to 'provide tailored home energy efficiency advice to consumers during the smart meter installation visit'.

Information and guidance

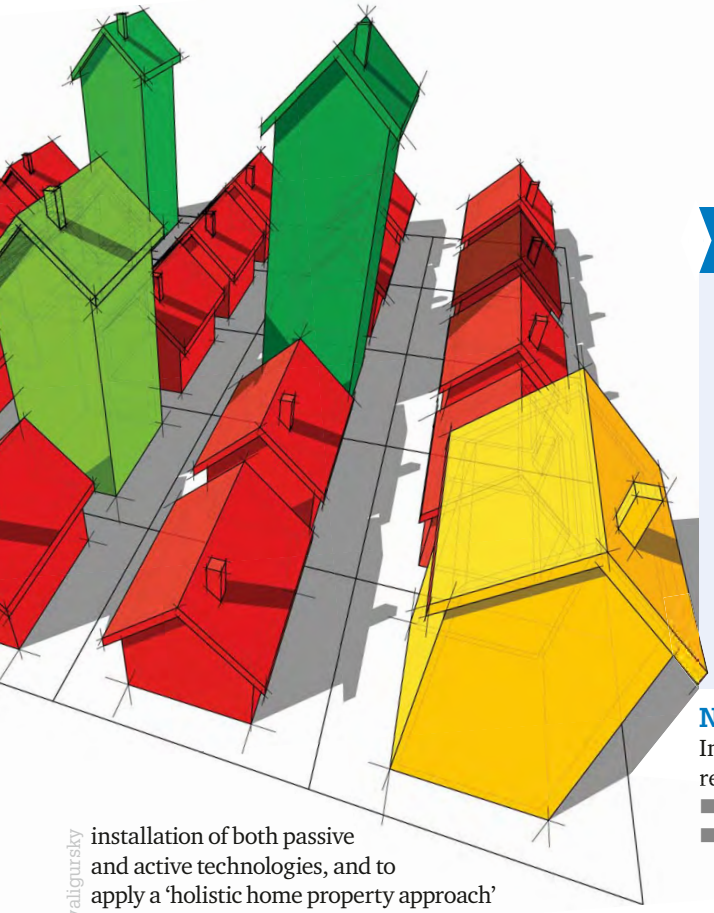
Every Home Counts concludes that successful energy retrofit needs to improve consumer and service provider access to useful information and guidance. This would be achieved through an information hub, which would also drive online and telephone advice to consumers, and a so-called data warehouse (an accessible store for property-related data, including energy performance certificates).

Ideally, the data warehouse would also store design specifications ahead of installation, and aftercare support and quality information.

The story of home energy efficiency still mainly centres on insulation, and the future of domestic retrofitting will stand or fall on how well this is carried out. However, the review recognises the need to co-ordinate the design and

'We propose a quality mark for all energy efficiency and renewable energy measures – to indicate clearly that the holder delivers to best practice standards in the sector.'

Each Home Counts, 2016



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installation of both passive and active technologies, and to apply a 'holistic home property approach' – one which considers a domestic dwelling as an energy system with interdependent parts that affect the overall performance of the whole system. The occupants, site, and even local climate will all be taken into account.

To support the review's recommendations on standards for both domestic energy efficiency and renewable energy measures, a new Retrofit Standards Task Group would address the next generation of energy installation benchmarks. Two standards that supported the Green Deal – PAS 2030, on the installation of energy efficiency measures, and PAS 2031, on the requirements for certification to PAS 2030 – are being revised.

However, standardising may prove harder than previously required for the Green Deal, as domestic energy installation moves towards interconnected systems based on smarter technology, the internet of things (connected and actuated technology), local energy storage and smart grids. Meanwhile, the proposed codes of practice would aim to engage with these new challenges by including the role of design before installation, notably for more complex work or combinations of measures and technologies.

Active energy technologies

The review notes that the 1.5 million condensing boilers installed every year, alongside heating controls, would continue to play a role and that other technologies, including LED lighting, solar PV and thermal, and ventilation are already widely used.

Although the standards for these technologies are now established, the review cites heat pumps, biomass boilers and lighting controls as being of benefit in the future, even if they are not yet mainstream. Guidance and standards for these less established measures need to be reviewed in more detail as part of yet another proposal – an action plan for each potentially useful energy technology.

The Green Deal

Launched on 28 January 2013, the Green Deal was the coalition government's flagship energy efficiency scheme. Money was made available for a range of energy-saving measures to be installed in homes and the Green Deal Finance Company was set up to fund providers.

Amber Rudd, then secretary of the former energy and climate change department (Decc), announced in July 2015 that the government was ending funding of the company, in effect closing it. Decc claimed that low take-up and concerns over industry standards were the reasons for the scheme's demise.

Last month, financial services firms Greenstone Finance and Aurium Capital Markets announced they had acquired the business and assets of the GDFC, as well as its existing loan book.

Next steps

Initial activity in support of the review's recommendations focus on:

- developing the new QM framework;
- agreeing terms of reference for the strategic governance board, and the role of the supporting service organisation; and
- developing the key elements of the:
  - code of conduct;
  - consumer charter;
  - codes of practice and associated standards; and
  - information hub and the data warehouse.

To an extent, the 27 recommendations in *Every Home Counts* underline how far short the Green Deal was in providing an effective backdrop for a UK domestic retrofit, even before the crucial question of financing. Although the defunct scheme broadly assumed that energy-related measures would be installed in one hit, the Bonfield review recognises that measures may be installed over many years. Even then, a holistic approach needs to be taken.

One risk of advocating a new quality mark is accidentally interfering with what already works in the domestic marketplace, although the review says 'certification (for the QM) would continue much in the same manner for installers as it does now'. If so, the QM can focus on the real task, which is raising the minimum acceptable standard that operates across the domestic energy retrofitting landscape. In doing so, the proposals in the review will result in extra costs, but increased market volume and efficiency will offset these for service providers and, ultimately, consumers.

Every Home Counts is broad in scope, and some of the recommendations – notably the timescales – are optimistic, particularly when one considers that publication was delayed for around nine months. The next six months should show which recommendations have the necessary stakeholder support, how many are likely to go ahead, and what they may eventually mean for the success of domestic energy retrofitting in the UK.

Paul Reeve, CEnv FIEMA, is director of business at the Electrical Contractors' Association.

Paul Eijssen

Strategic consultant and associate director of smart urban environment, Royal HaskoningDHV

Career file

Qualifications:
MIEMA, IAIA, Chartered environmentalist

CV: [all roles at Royal HaskoningDHV]
2016 to date Associate director – smart urban environment
2011 to date strategic consultant – impact assessment
2007 to 2011 director advisory group – impact assessment and stakeholder management
1998 to 2007 senior EIA consultant
1991 to 1998 junior EIA consultant
1990 to 1991 air quality adviser
1988 to 1990 technician for air quality measurements

Why did you become an environment professional? Although the environment has always been of interest to me, this field of work was not a specific choice. I started my studies in plant pathology, but after a year I switched to specialise in analytical and organic chemistry. As part of my studies, I completed an internship in environmental research at the Dutch National Institute for Public Health and the Environment. After completing my first degree, my interest in the environment developed further when I secured a job at a large engineering consulting firm.

What was your first environment/sustainability job? My first job in this industry was as a technician measuring air pollution. As part of this role, I travelled through the Netherlands to take air samples. Over two years, I saw about 200 companies with air quality issues.

How did you get your first role?
I came across the job in an advert in a local newspaper. I was lucky to find it, particularly as it was based just 10 km from where I lived at the time.

How did you progress your career?
In my initial role, I came across environmental impact assessments (EIAs). This process suited me perfectly. I was lucky to be able to work on major projects in the fields of flood management, highways, harbours, airports and spatial planning. I became department head and knowledge group manager in EIA within the company. But I am still very hands-on in my current role and enjoy working on projects with my team.

What does your current role involve? I fulfil different roles in IA projects. On the one hand, I work as a project leader or project manager. On the other, I have a role as knowledge manager. I'm currently working on a pilot project to achieve innovation in impact assessments. Aside from projects, I manage a team of 18 professionals in the field of air quality and noise.

How has your role changed?
Impact assessments were introduced in the Netherlands only about 30 years ago and, although there have been changes made to procedures, the ideas and processes are still roughly the same. However, because of my experience and network, the work constantly shifts from writing to consulting. I train professionals both in and outside the company, and spend a lot of time discussing with international colleagues how EIAs can improve. I've recently started an initiative to innovate reporting using a fully digital and interactive approach, the results of which will be presented in April at the IAIA conference in Montréal.

What's the best part of your work?
My innovation project gives me a lot of energy. Connecting the traditional field with all sorts of new technologies is challenging, but the good thing is that it will significantly help to improve the image of the EIA industry. The aim is to make information more accessible to decision makers and stakeholders so they become more involved and can contribute to decision-making.

What's the hardest part of your job?
Working in a very competitive market means that a lot of time is spent on managing each project. Discussions on tightly defined scope and schedules require a lot of attention, so I often spend less time working on delivering the content for the project.

What was the last event you attended? I gave a presentation in May 2016 on digital interactive EIA reporting at the annual IAIA conference in Nagoya, Japan. In September, I gave a similar presentation at the Water IAIA conference in Lincoln, UK – both of which were hugely rewarding in terms of industry collaboration.

What is/are the most important skill(s) for your role and why?
I think it is a combination of knowledge, social skills, sound business acumen and understanding the processes and position of your clients and stakeholders. It is also important to have an open mind.

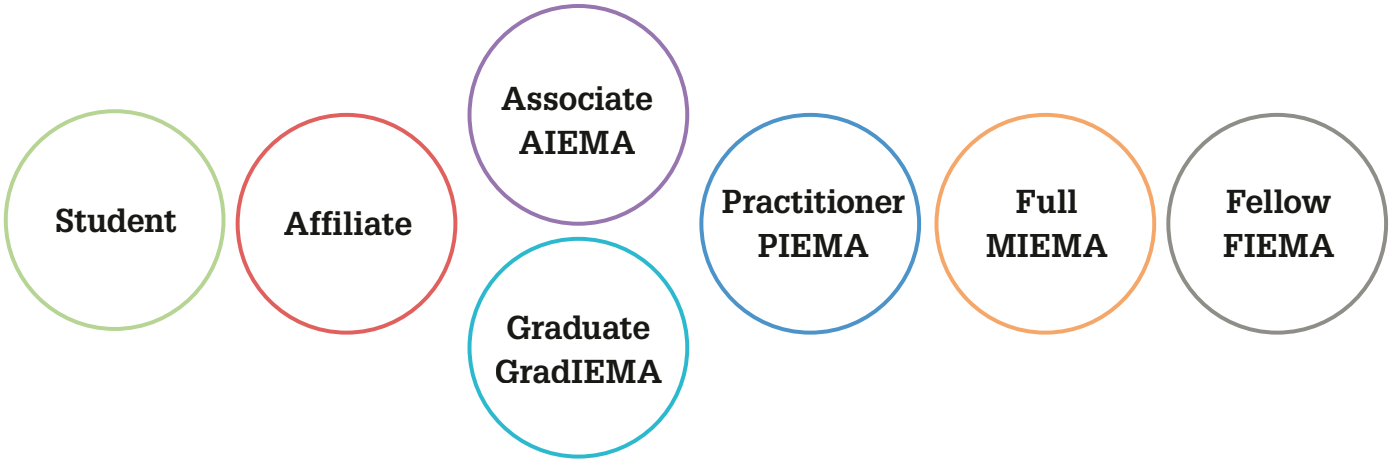
Where do you see the profession going? It's likely it will continue in the same vein as the past few years, but with a growing focus on sustainability and climate change. How quickly developments will move is hard to say.

Where would you like to be in five years' time? I see a lot of potential in the digitalisation of the EIA process, which could also be interesting for a lot of other fields of work. I hope to become an expert on this in the years ahead.

What advice would you give to someone entering the profession?
Don't try to rush your career. It takes time to become a known professional in this space, and you need to create a sound knowledge base. That level of knowledge will serve to help you become a trusted adviser and an appreciated colleague.

How do you use IEMA's environmental skills map?
I joined IEMA only in 2016, so the map is new to me, but it certainly promises to be a very useful tool to discover elements that can help me in continuing my personal professional development.

Latest member upgrades



IEMA would like to congratulate the following members on recently upgrading their membership as part of their ongoing commitment to learning and professional development.

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Gillian Bowman, Bombardier
Matthew Brown, GroundSure
Sally Croker, AustralAsian Resource Consultants
Russel Drakeley, First Quality Solutions
Callum Draper, Arcadis UK
Christiane Duncan, Environment Agency
Joshua Higgins, Mott MacDonald
Marcel Hurst, GO Contaminated Land Solutions
Jacob Ivorson, Assurity Consulting
Angela Kelly, Natural Power Consultants
Oliver Lockwood, ESP
Rachel O'Sullivan, J Coffey Construction
Suzannah Sherman, Carbon Clear

Practitioner (PIEMA)

Paul Acreman, Crediton Dairy
Nathan Adams, Focus Consultants
Egheose Adeoti, Environmental Consultants
Ramona Petronela Ailoaie, GlaxoSmithKline
Jason Aldridge
Saud Al Enazi
Sean Allen, WSP
Nursulu Alpan, NCOC NV
Paul Anchor, Airbus Operations UK
Jane Anderson, Chubb Systems
Thomas Anderson, Offshore Structures Britain
Richard Anjorin, Transmission Company of Nigeria
Jenny Arrichiello, Mayer Environment
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Christopher Brown, GKN Aerospace Filton
Holly Brown
James Brown, Kelt Bray Aspire
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Daniel Devaney, Carillion
Chris Dodd, Toyoda Gosei UK
Irena Dunkley
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Graham Gaskill, The Senator Group
Alex Giles, Action Sustainability
Stewart Gill, Bradken
Beatrice Githinji, Chase Bank Kenya
Nicholas Glass
Zoe Goble, A S Rentals
John Golec
William Grey, National Grid
Elizabeth Grove, Greengage Environmental
Martin Guard
Andrew Gullick
Ludi Hall-Drinkwater, Skanska
Christopher Halsall, Papworth Trust
Brian Handcock, John Sisk and Sons
Adrian Hardy
Kirstine Harkin, James Walker & Co
Samuel Hart, Galldris Constuction
Kenny Hay, Registers of Scotland
Louise Holloway, Associated British Foods
Ian Holton, Aggregate Industries UK

Minapo Peter Honfor, Maspec Piccolo Investment
Ian Horton, Purolite
Georgina Howell, Environment Agency
Richard Hughes
Rhys Hutchings, Siniat
Hayley Jeremiah, Tata Steel UK
Andrew Jones, SITA UK
Jamie Jones, Tata Steel UK
Artur Kidacki, Pulse Printing Products
Dan Kirby, Carillion
Richard Kirby, SITA UK
Cindy Kloehn, Airbus Group
David Knights, Airbus Group
Alexander Koscielski, GHD
Tom Lane, UK Distribution Centre
Adam Law, Flexible Fund
Geoff Lawson, Glasgow Kelvin College
Tristan Lincoln-Gordon, HS2
Elizabeth Lippett, Truck-Lite Co
Andy Loake, Hanson Concrete
Donald Marshall, Carillion
Yvonne Mather, DSTL
Jonathan Mawer, Ken Rodney Construction
Max McConnachie, MM Safety Solutions
Hayley McDowall, Greater Manchester Fire and Rescue Service
Steven McNeill
Annette McStein, Network Rail
Gary Minshull, Army
Andrew Morgan, Environment Agency
Sarah Morris, Transport for London
Emma Mundy, Lorax Compliance
Michael Murphy, Heathrow Airport
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John Paul
Nicola Pearson, Redrow
Emma Peddie, BBC
Holly Peedle, Skanska
Bob Phillips, Linde Group
David Pitt, Lovell Partnership
David Poole, Tata Steel Project
Chris Power, 4See
Paula Price, Centrica
Matthew Pygott, Carillion Rail
Eva Racz, Belzona Polymerics
Stephen Raisbeck, Thomas Swan and Co
Jonathan Rawlings, Lloyd's Register Quality Assurance
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Joanna Ready, AECOM
James Reeve, Energy Networks Association
Ronnie Reid, Greenzone
Andrew Rennie, Swift Group
Nicola Ridgway, Kier Group
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Maged Abdulrahman Omar Salem, National Foods Industries
Alec Salter, MST Recycling Solutions
Adam Saunders, SITA UK
Callum Scott, Canary Wharf Contractors
Craig Scott, Siemens
Sarah Selby, Gillette UK
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Mark Sharples, Gresham Office Furniture
Paul Shergold, Northern Automotive Systems
Phil Sibley, P&G
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Gary Tapley, Pembrokeshire College
Mhariffe Taruc, Sharjah National Oil Corp
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Hannah Thorne, Paragon
Thomas Tremlett, Horizon Nuclear Power
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Kennedy Uzoegwu, Wema Bank
Emma Vessey, Quartzelec
Mark Wadsworth, Weir Minerals Europe
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Richard Wallace, UPM Kymmene
Naomi Warmington, Dubai World Trade Center
Kevin Watson, Highfield Environmental
Colin Wheatley, The Explorer Group
Adrian White, Lovell Partnerships
Glenn Whitten, Lovell Partnerships
Declan Whittingslow, Willmott Dixon
Matthew Wood, Morgan Sindall Property Services
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Jozef Zapytowski, Horizon Nuclear Power

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Ryland Cairns, Muntons
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Beth Emberton, Arup
Jonathan Evans, WSP
Mark Fenton, HS2
Rebecca Fleet, National Grid
Sine Gabbott, Gabbott Engineering
Elizabeth Greenaway, Morgan Sindall
Andy Griffiths, Nestlé
Christopher Hayes, Focus FM
Kathryn Hands, URS Infrastructure & Environment UK
Helen Howells, Natural Resources Wales
Matthew Hunt, Royal HaskoningDHV
Victor Imevbore, Environmental Resources Managers
Nigel Johnston, BAM Nuttall
Robert Jones, Specsavers Optical Superstores
Sue Jordan, Ministry of Defence
Gemma Keenan, Royal HaskoningDHV
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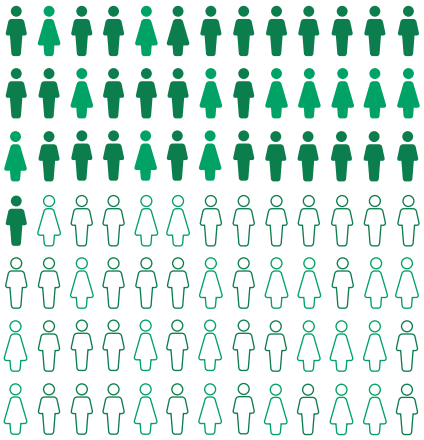

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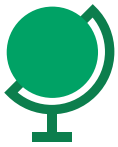

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